FIG.1

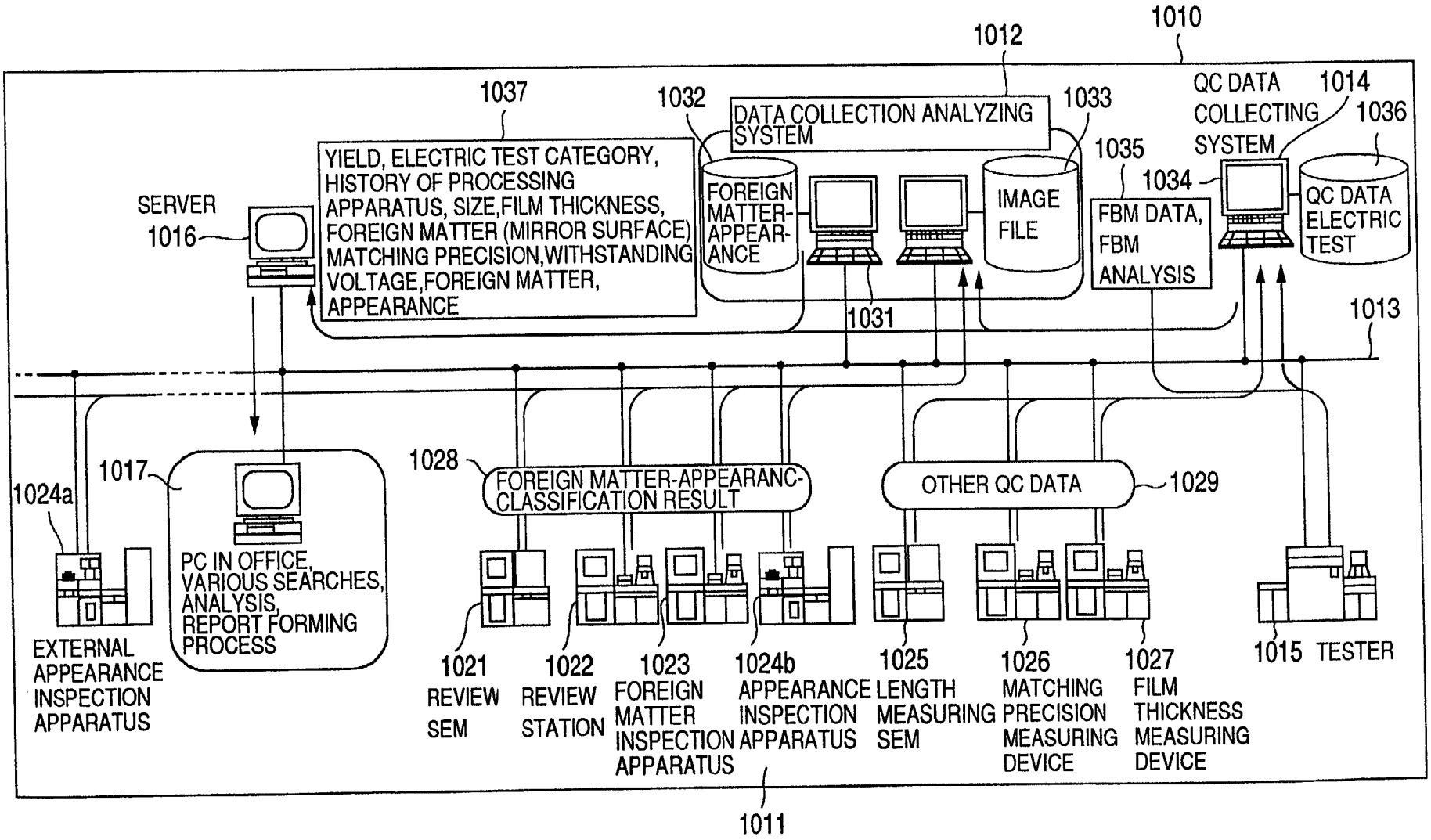

1010
1012
1037
1032
DATA COLLECTION ANALYZING SYSTEM
1033
QC DATA COLLECTING SYSTEM
1014
1036
YIELD, ELECTRIC TEST CATEGORY, HISTORY OF PROCESSING APPARATUS, SIZE, FILM THICKNESS, FOREIGN MATTER (MIRROR SURFACE) MATCHING PRECISION, WITHSTANDING VOLTAGE, FOREIGN MATTER, APPEARANCE
FOREIGN MATTER-APPEARANCE
IMAGE FILE
1035
FBM DATA, FBM ANALYSIS
1034
QC DATA ELECTRIC TEST
SERVER
1016
1031
1013
1024a
1017
1028
FOREIGN MATTER-APPEARANC-CLASSIFICATION RESULT
OTHER QC DATA
1029
PC IN OFFICE, VARIOUS SEARCHES, ANALYSIS, REPORT FORMING PROCESS
EXTERNAL APPEARANCE INSPECTION APPARATUS
1021 REVIEW SEM
1022 REVIEW STATION
1023 FOREIGN MATTER INSPECTION APPARATUS
1024b APPEARANCE INSPECTION APPARATUS
1025 LENGTH MEASURING SEM
1026 MATCHING PRECISION MEASURING DEVICE
1027 FILM THICKNESS MEASURING DEVICE
1015 TESTER
1011

FIG.2

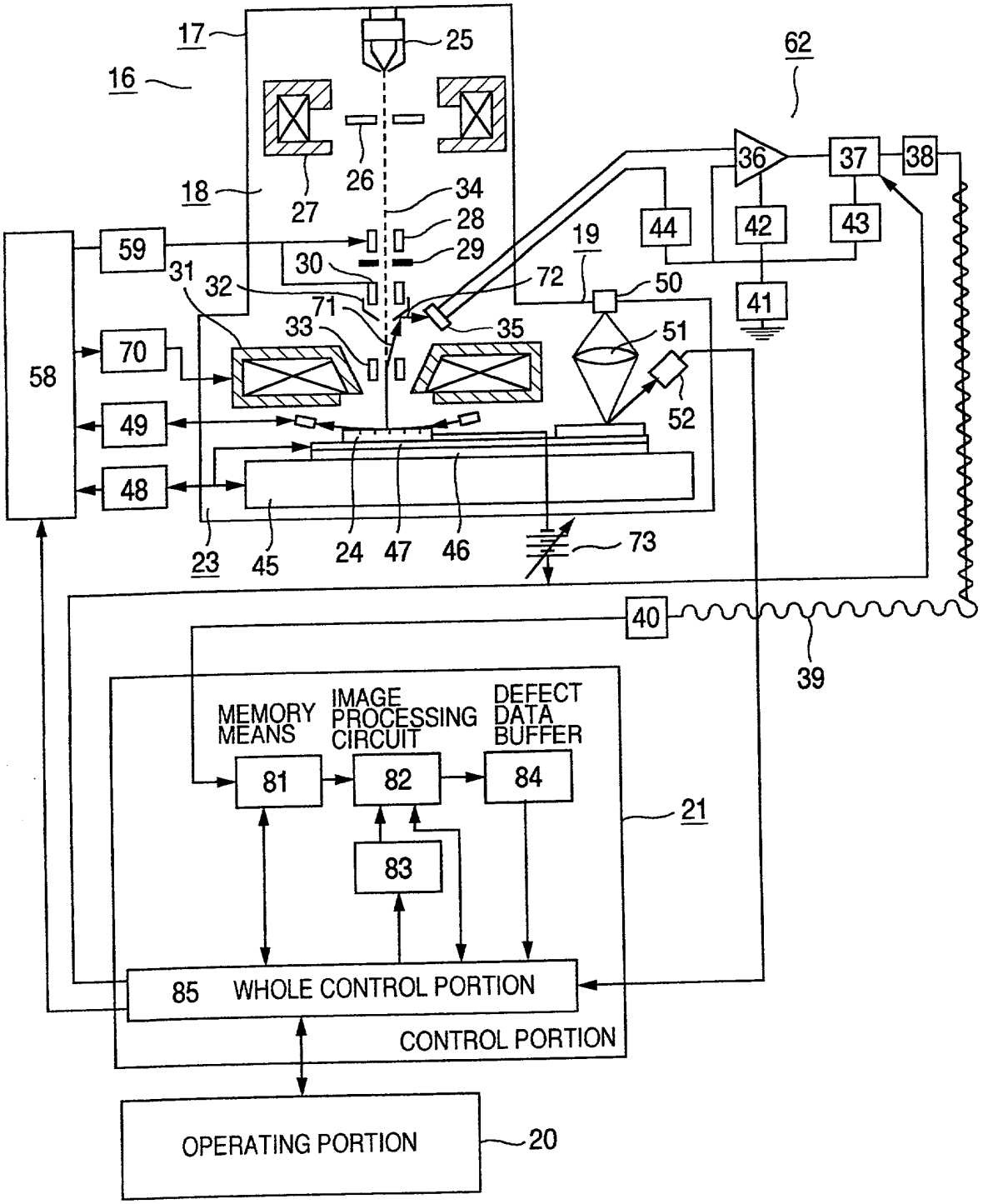

17
16
25
62
18
26
27
34
28
29
30
31
32
71
72
19
44
42
43
36
37
38
59
50
41
33
35
51
58
70
49
48
52
23
45
24
47
46
73
40
39
MEMORY MEANS
IMAGE PROCESSING CIRCUIT
DEFECT DATA BUFFER
81
82
84
21
83
85 WHOLE CONTROL PORTION
CONTROL PORTION
OPERATING PORTION
20

FIG.3

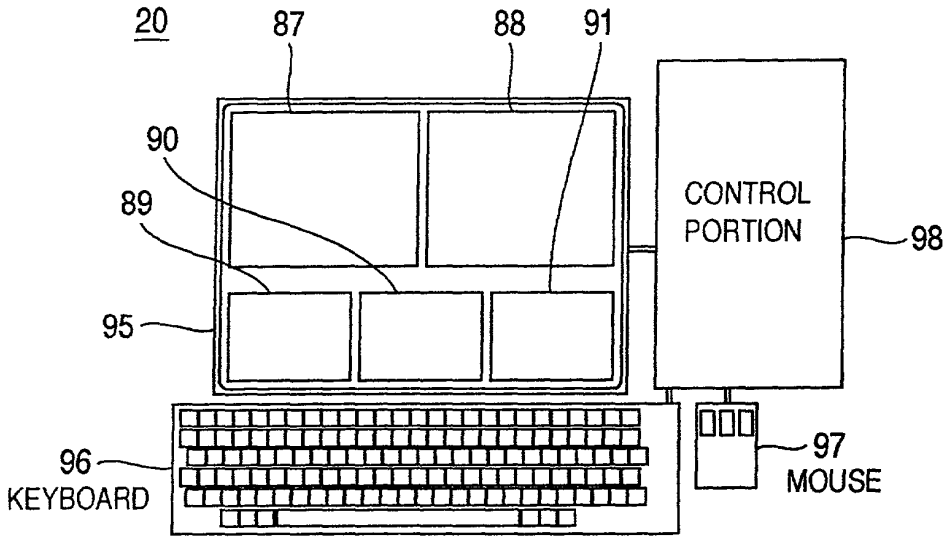


FIG.4

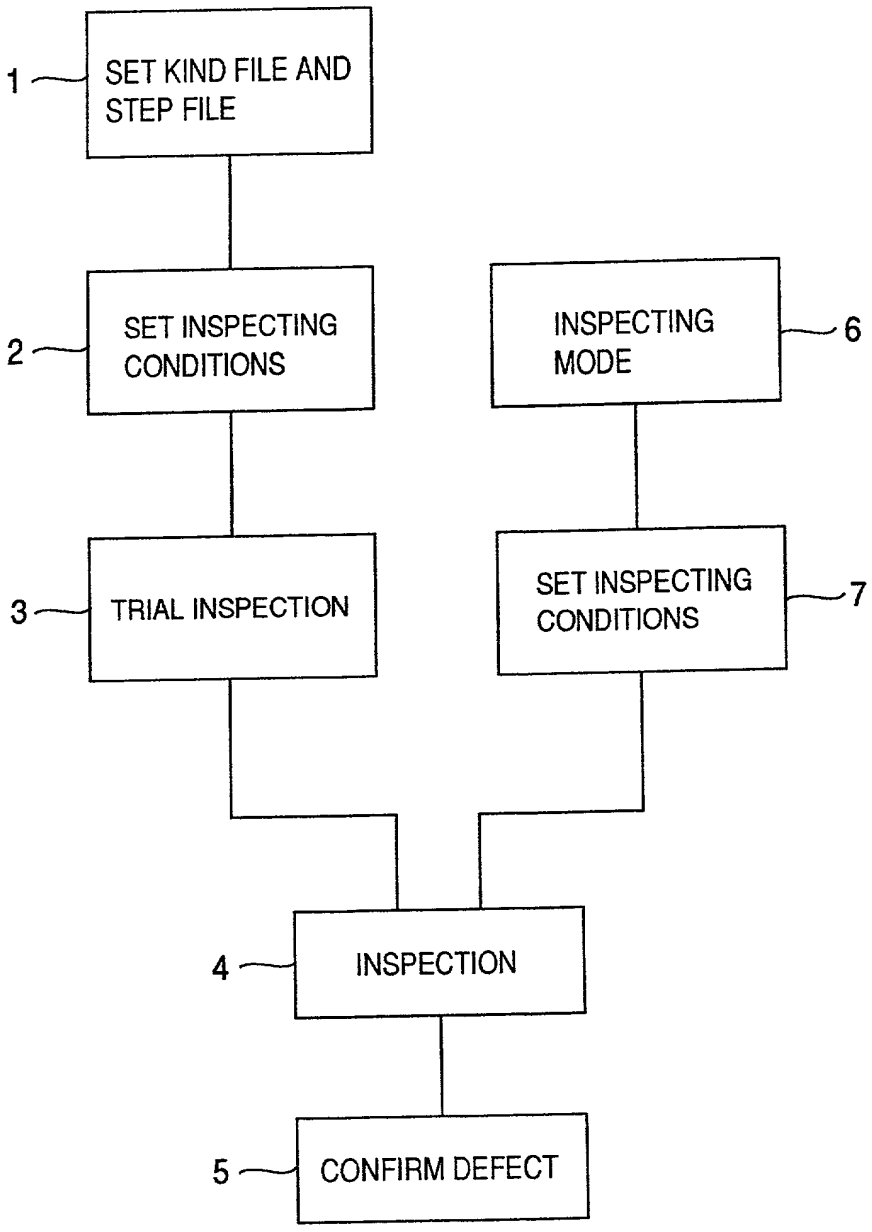
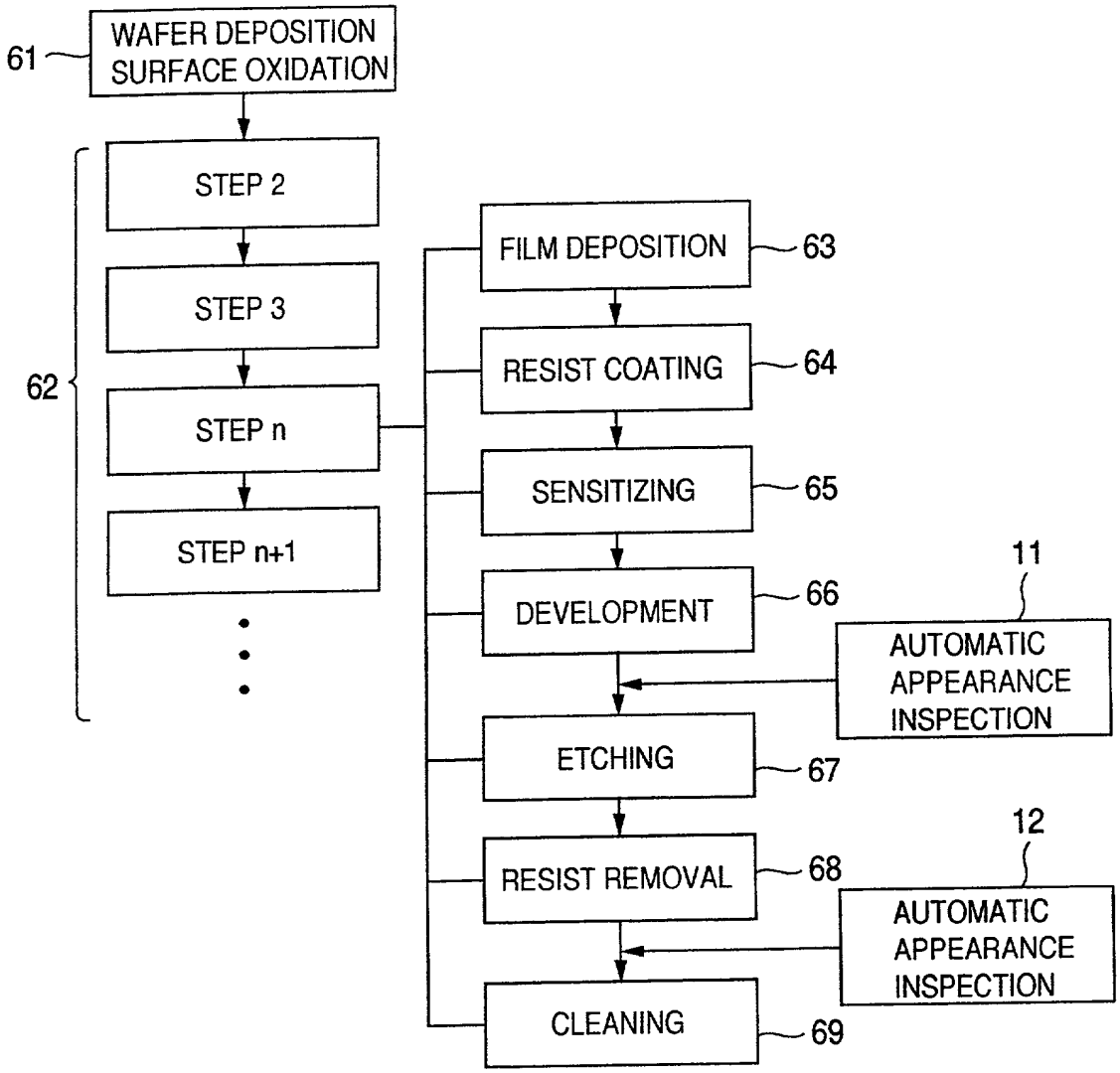

1
SET KIND FILE AND STEP FILE
2
SET INSPECTING CONDITIONS
3
TRIAL INSPECTION
INSPECTING MODE
6
SET INSPECTING CONDITIONS
7
4
INSPECTION
5
CONFIRM DEFECT

FIG.5


61
WAFER DEPOSITION
SURFACE OXIDATION
62
STEP 2
STEP 3
STEP n
STEP n+1
FILM DEPOSITION
63
RESIST COATING
64
SENSITIZING
65
DEVELOPMENT
66
11
AUTOMATIC
APPEARANCE
INSPECTION
ETCHING
67
12
RESIST REMOVAL
68
AUTOMATIC
APPEARANCE
INSPECTION
CLEANING
69

EOTHO"0220260

FIG.6

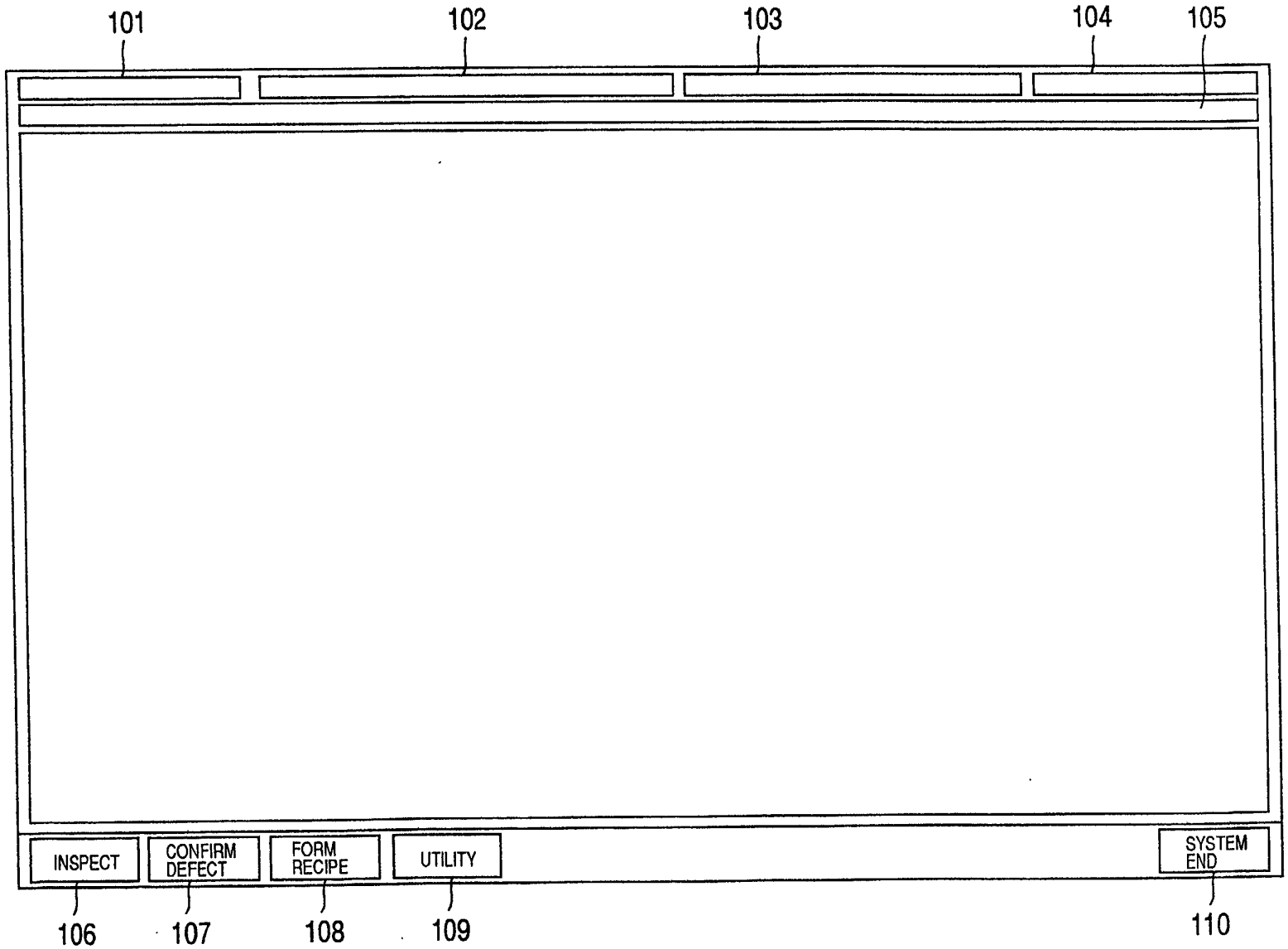


FIG.7

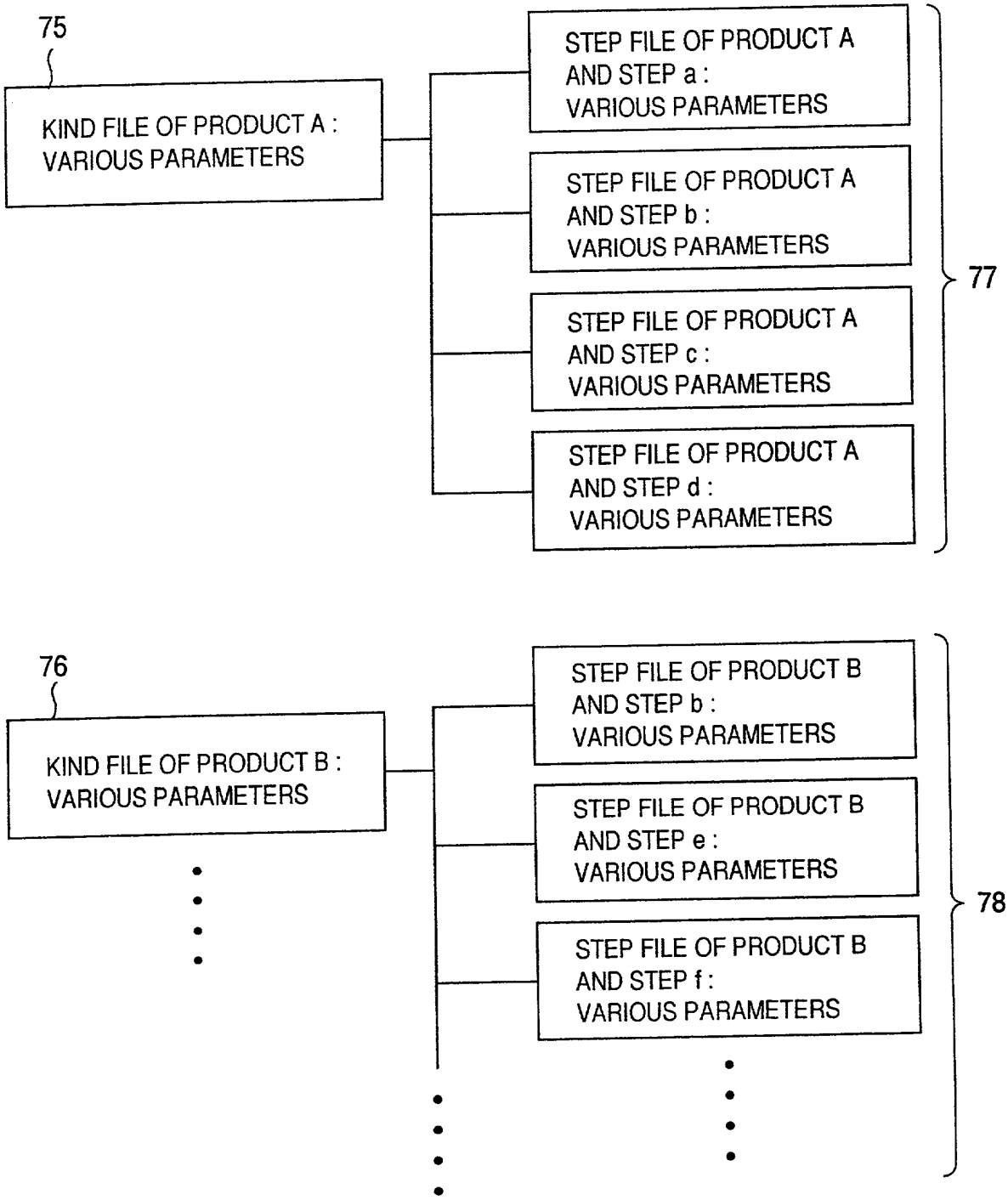
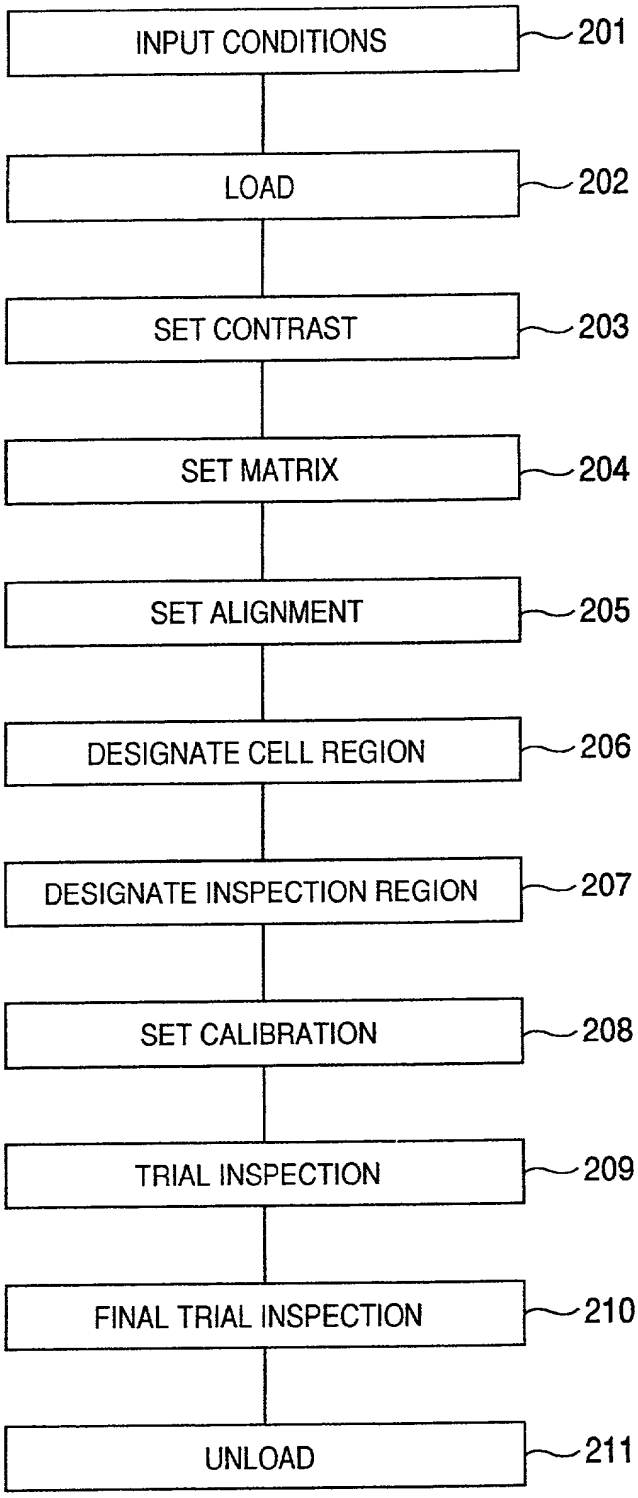

75
KIND FILE OF PRODUCT A : VARIOUS PARAMETERS
STEP FILE OF PRODUCT A AND STEP a : VARIOUS PARAMETERS
STEP FILE OF PRODUCT A AND STEP b : VARIOUS PARAMETERS
STEP FILE OF PRODUCT A AND STEP c : VARIOUS PARAMETERS
STEP FILE OF PRODUCT A AND STEP d : VARIOUS PARAMETERS
77
76
KIND FILE OF PRODUCT B : VARIOUS PARAMETERS
STEP FILE OF PRODUCT B AND STEP b : VARIOUS PARAMETERS
STEP FILE OF PRODUCT B AND STEP e : VARIOUS PARAMETERS
STEP FILE OF PRODUCT B AND STEP f : VARIOUS PARAMETERS
78

FIG.8


INPUT CONDITIONS
201
LOAD
202
SET CONTRAST
203
SET MATRIX
204
SET ALIGNMENT
205
DESIGNATE CELL REGION
206
DESIGNATE INSPECTION REGION
207
SET CALIBRATION
208
TRIAL INSPECTION
209
FINAL TRIAL INSPECTION
210
UNLOAD
211

TOKKO 0222860

FIG.9

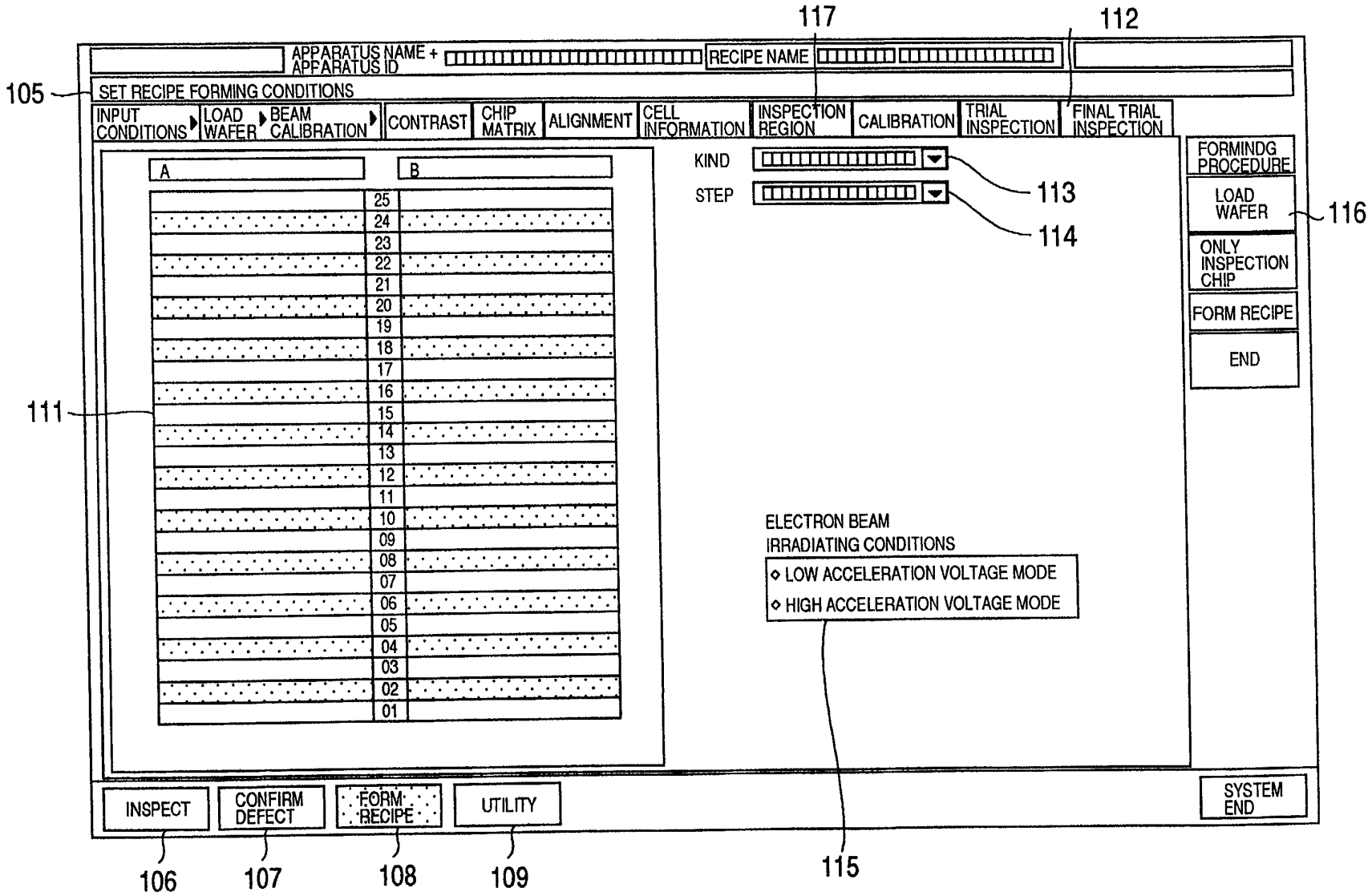


FIG.10

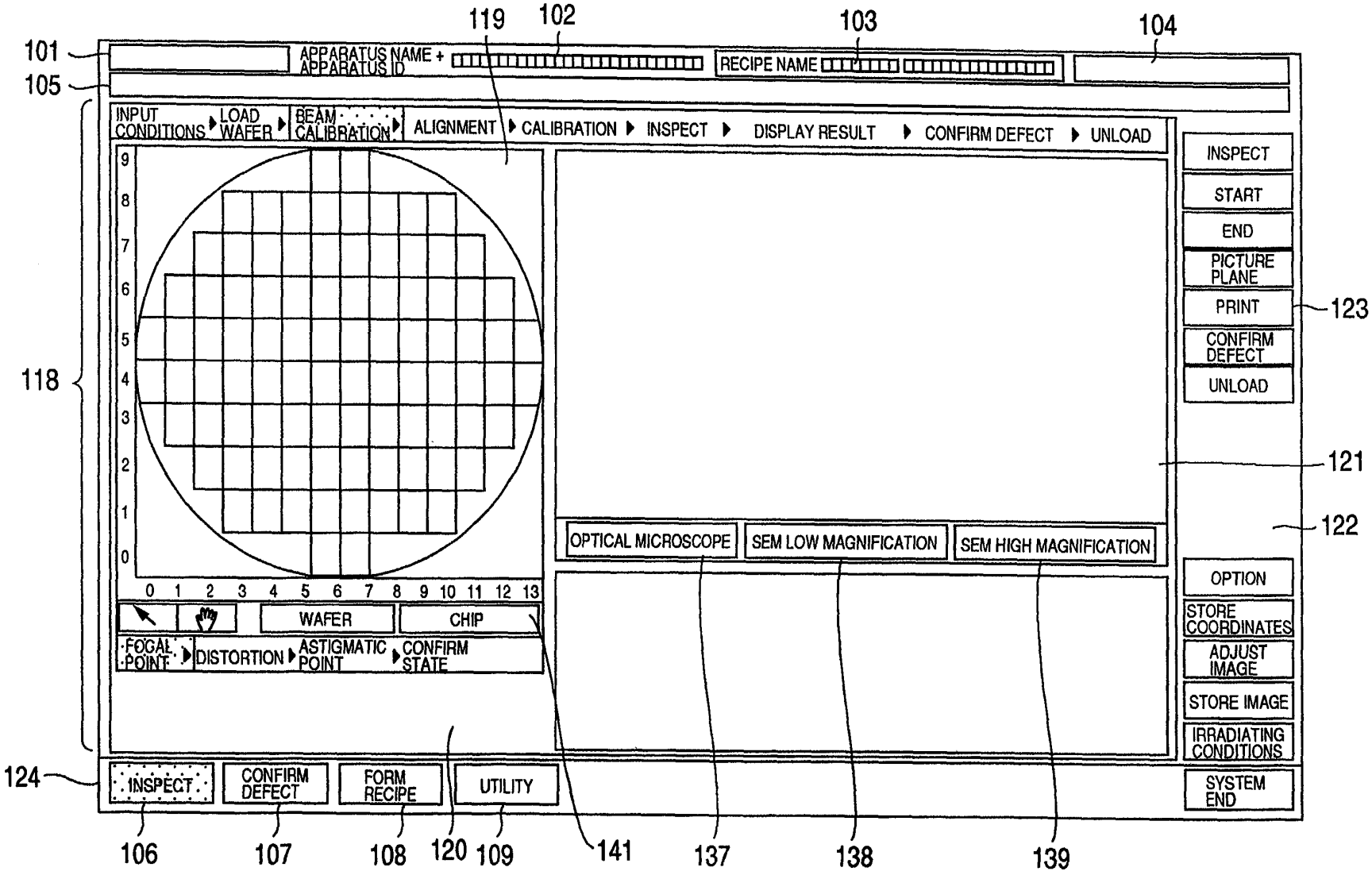

101
105
118
119
102
103
104
APPARATUS NAME + APPARATUS ID
RECIPE NAME
INPUT CONDITIONS
LOAD WAFER
BEAM CALIBRATION
ALIGNMENT
CALIBRATION
INSPECT
DISPLAY RESULT
CONFIRM DEFECT
UNLOAD
INSPECT
START
END
PICTURE PLANE
PRINT
CONFIRM DEFECT
UNLOAD
123
121
122
OPTICAL MICROSCOPE
SEM LOW MAGNIFICATION
SEM HIGH MAGNIFICATION
WAFER
CHIP
FOCAL POINT
DISTORTION
ASTIGMATIC POINT
CONFIRM STATE
OPTION
STORE COORDINATES
ADJUST IMAGE
STORE IMAGE
IRRADIATING CONDITIONS
SYSTEM END
124
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
106
107
108
120
109
141
137
138
139

FIG.11

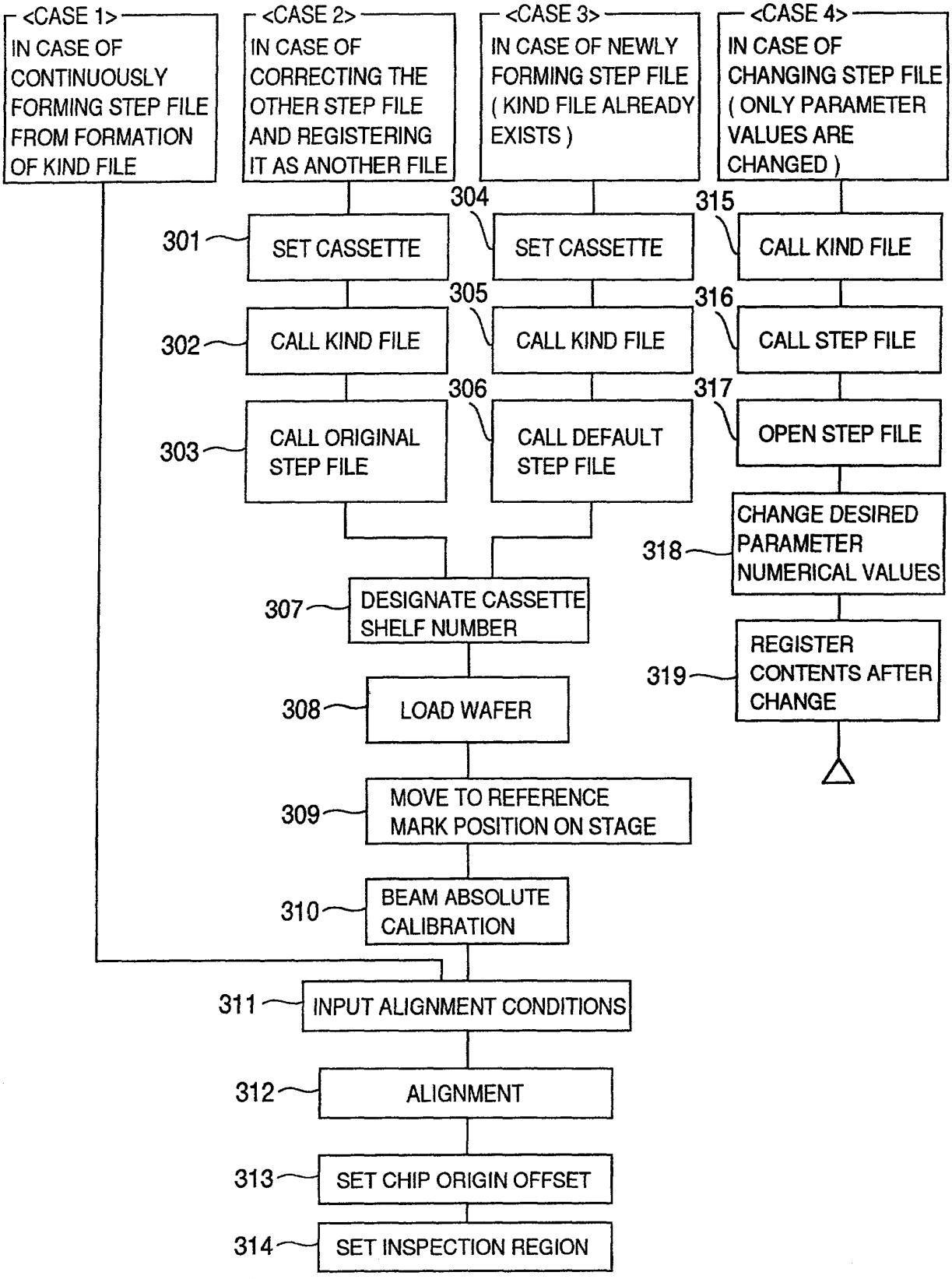

<CASE 1>
IN CASE OF CONTINUOUSLY FORMING STEP FILE FROM FORMATION OF KIND FILE
<CASE 2>
IN CASE OF CORRECTING THE OTHER STEP FILE AND REGISTERING IT AS ANOTHER FILE
<CASE 3>
IN CASE OF NEWLY FORMING STEP FILE (KIND FILE ALREADY EXISTS)
<CASE 4>
IN CASE OF CHANGING STEP FILE (ONLY PARAMETER VALUES ARE CHANGED)
301
SET CASSETTE
304
SET CASSETTE
315
CALL KIND FILE
302
CALL KIND FILE
305
CALL KIND FILE
316
CALL STEP FILE
303
CALL ORIGINAL STEP FILE
306
CALL DEFAULT STEP FILE
317
OPEN STEP FILE
318
CHANGE DESIRED PARAMETER NUMERICAL VALUES
307
DESIGNATE CASSETTE SHELF NUMBER
319
REGISTER CONTENTS AFTER CHANGE
308
LOAD WAFER
309
MOVE TO REFERENCE MARK POSITION ON STAGE
310
BEAM ABSOLUTE CALIBRATION
311
INPUT ALIGNMENT CONDITIONS
312
ALIGNMENT
313
SET CHIP ORIGIN OFFSET
314
SET INSPECTION REGION

FIG.12

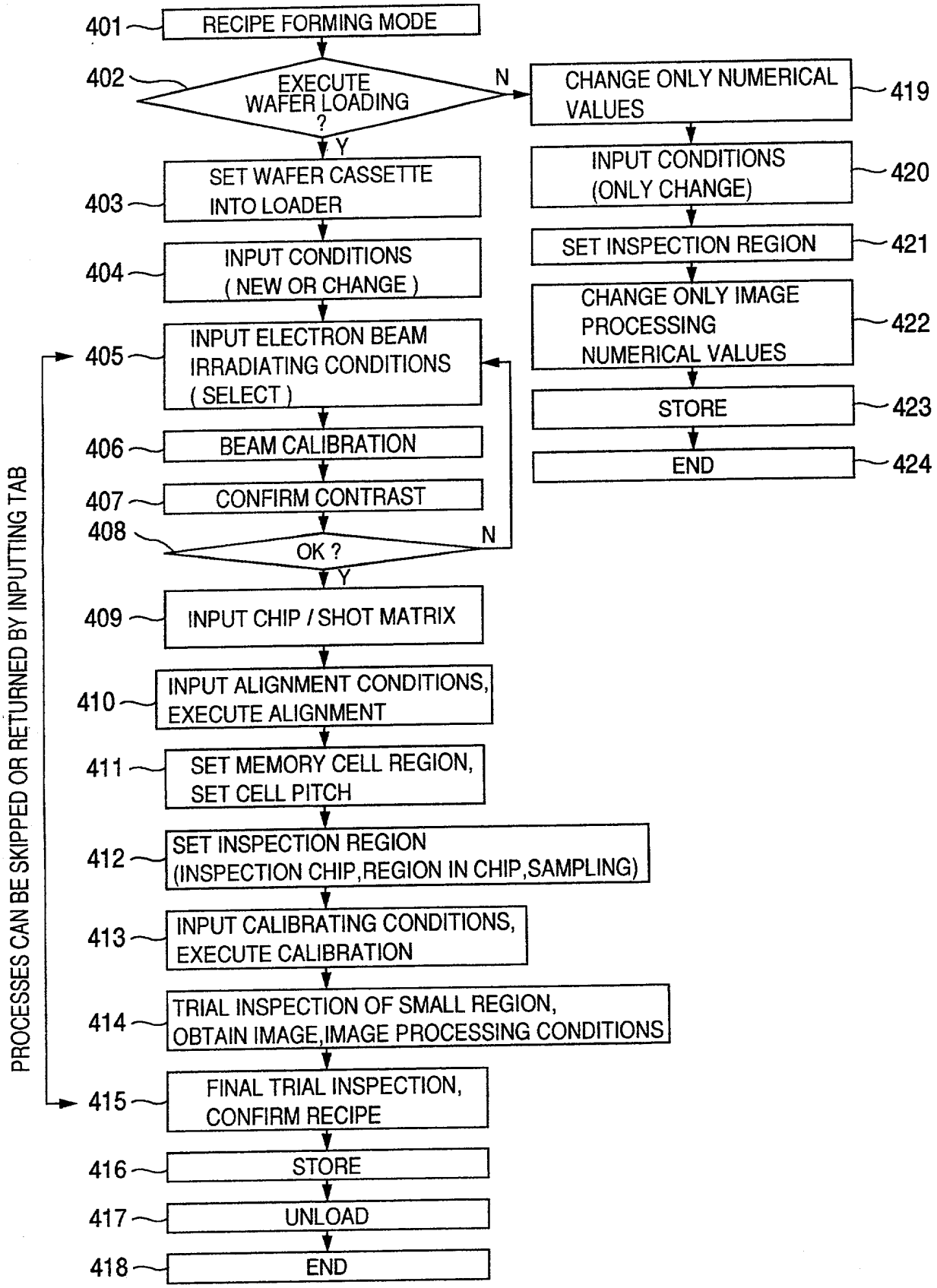

401
RECIPE FORMING MODE
402
EXECUTE WAFER LOADING ?
N
Y
403
SET WAFER CASSETTE INTO LOADER
404
INPUT CONDITIONS (NEW OR CHANGE)
405
INPUT ELECTRON BEAM IRRADIATING CONDITIONS (SELECT)
406
BEAM CALIBRATION
407
CONFIRM CONTRAST
408
OK ?
N
Y
409
INPUT CHIP / SHOT MATRIX
410
INPUT ALIGNMENT CONDITIONS, EXECUTE ALIGNMENT
411
SET MEMORY CELL REGION, SET CELL PITCH
412
SET INSPECTION REGION (INSPECTION CHIP,REGION IN CHIP,SAMPLING)
413
INPUT CALIBRATING CONDITIONS, EXECUTE CALIBRATION
414
TRIAL INSPECTION OF SMALL REGION, OBTAIN IMAGE,IMAGE PROCESSING CONDITIONS
415
FINAL TRIAL INSPECTION, CONFIRM RECIPE
416
STORE
417
UNLOAD
418
END
PROCESSES CAN BE SKIPPED OR RETURNED BY INPUTTING TAB
419
CHANGE ONLY NUMERICAL VALUES
420
INPUT CONDITIONS (ONLY CHANGE)
421
SET INSPECTION REGION
422
CHANGE ONLY IMAGE PROCESSING NUMERICAL VALUES
423
STORE
424
END

FIG.13

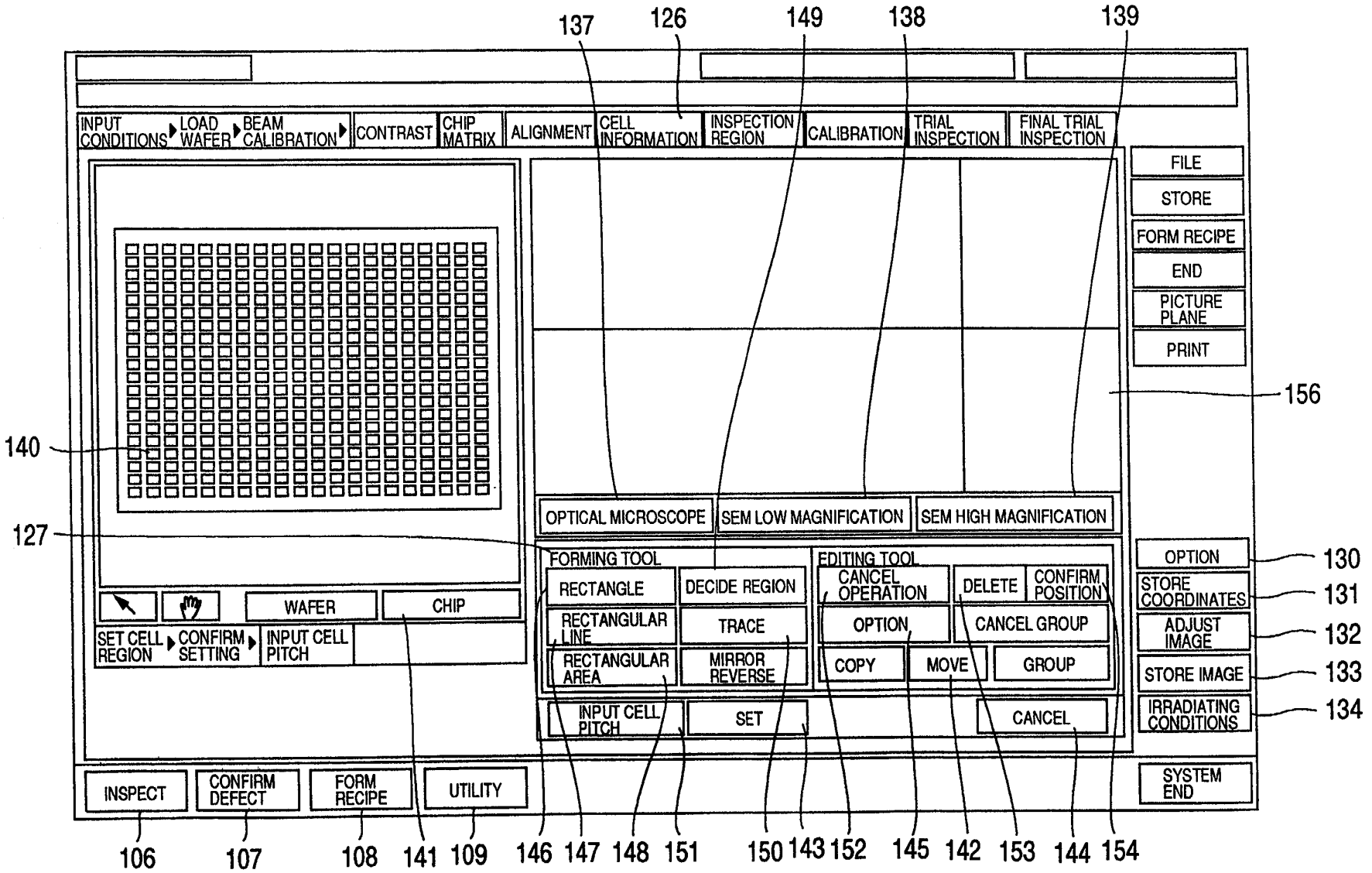

137
126
149
138
139
INPUT CONDITIONS
LOAD WAFER
BEAM CALIBRATION
CONTRAST
CHIP MATRIX
ALIGNMENT
CELL INFORMATION
INSPECTION REGION
CALIBRATION
TRIAL INSPECTION
FINAL TRIAL INSPECTION
FILE
STORE
FORM RECIPE
END
PICTURE PLANE
PRINT
156
140
OPTICAL MICROSCOPE
SEM LOW MAGNIFICATION
SEM HIGH MAGNIFICATION
127
FORMING TOOL
EDITING TOOL
OPTION
130
RECTANGLE
DECIDE REGION
CANCEL OPERATION
DELETE
CONFIRM POSITION
STORE COORDINATES
131
RECTANGULAR LINE
TRACE
OPTION
CANCEL GROUP
ADJUST IMAGE
132
RECTANGULAR AREA
MIRROR REVERSE
COPY
MOVE
GROUP
STORE IMAGE
133
IRRADIATING CONDITIONS
134
WAFER
CHIP
SET CELL REGION
CONFIRM SETTING
INPUT CELL PITCH
INPUT CELL PITCH
SET
CANCEL
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
SYSTEM END
106
107
108
141
109
146
147
148
151
150
143
152
145
142
153
144
154

FIG.14

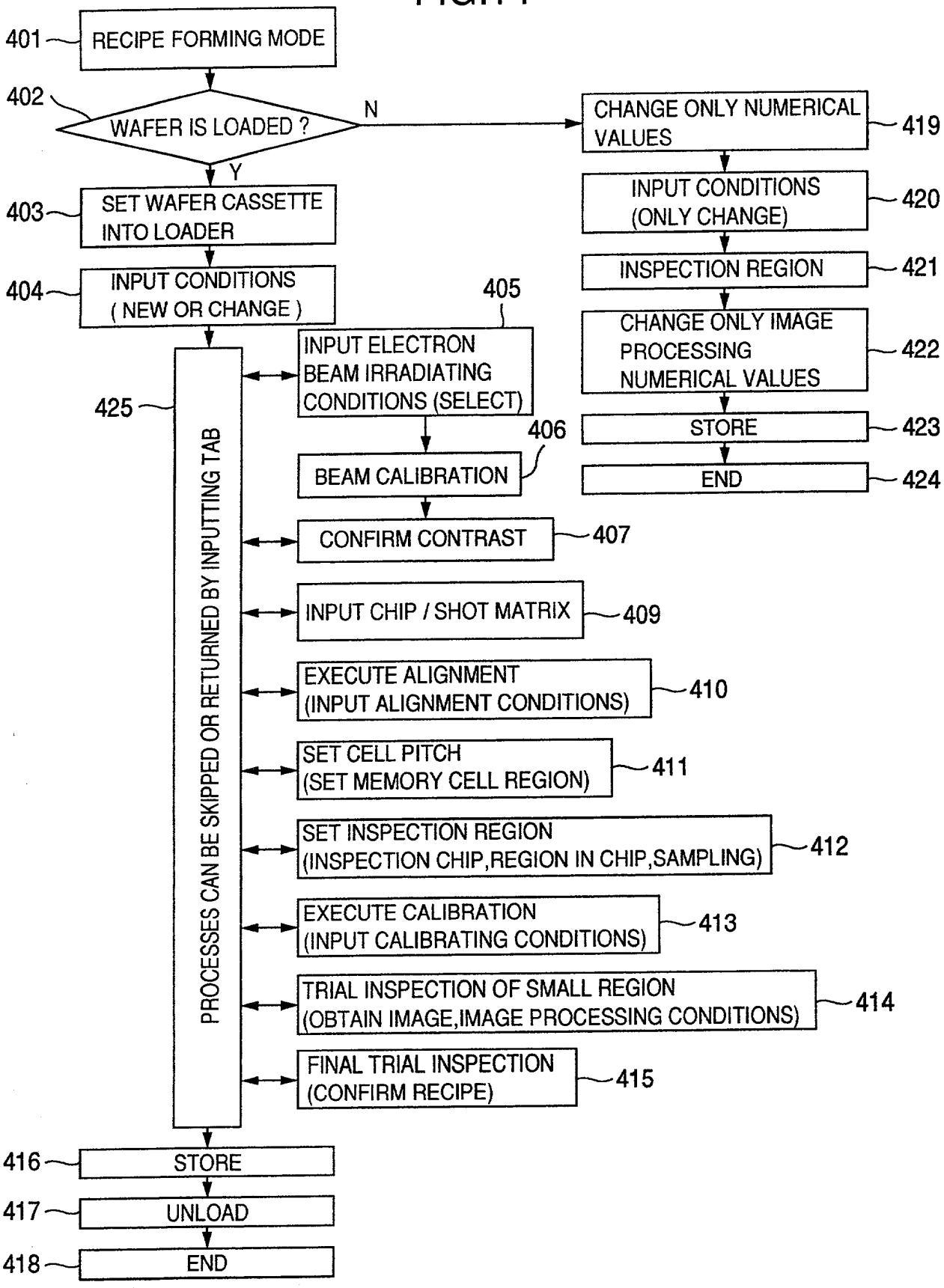

401
RECIPE FORMING MODE
402
WAFER IS LOADED ?
N
Y
403
SET WAFER CASSETTE INTO LOADER
404
INPUT CONDITIONS (NEW OR CHANGE)
405
INPUT ELECTRON BEAM IRRADIATING CONDITIONS (SELECT)
406
BEAM CALIBRATION
407
CONFIRM CONTRAST
409
INPUT CHIP / SHOT MATRIX
410
EXECUTE ALIGNMENT (INPUT ALIGNMENT CONDITIONS)
411
SET CELL PITCH (SET MEMORY CELL REGION)
412
SET INSPECTION REGION (INSPECTION CHIP,REGION IN CHIP,SAMPLING)
413
EXECUTE CALIBRATION (INPUT CALIBRATING CONDITIONS)
414
TRIAL INSPECTION OF SMALL REGION (OBTAIN IMAGE,IMAGE PROCESSING CONDITIONS)
415
FINAL TRIAL INSPECTION (CONFIRM RECIPE)
425
PROCESSES CAN BE SKIPPED OR RETURNED BY INPUTTING TAB
416
STORE
417
UNLOAD
418
END
419
CHANGE ONLY NUMERICAL VALUES
420
INPUT CONDITIONS (ONLY CHANGE)
421
INSPECTION REGION
422
CHANGE ONLY IMAGE PROCESSING NUMERICAL VALUES
423
STORE
424
END

FIG.15

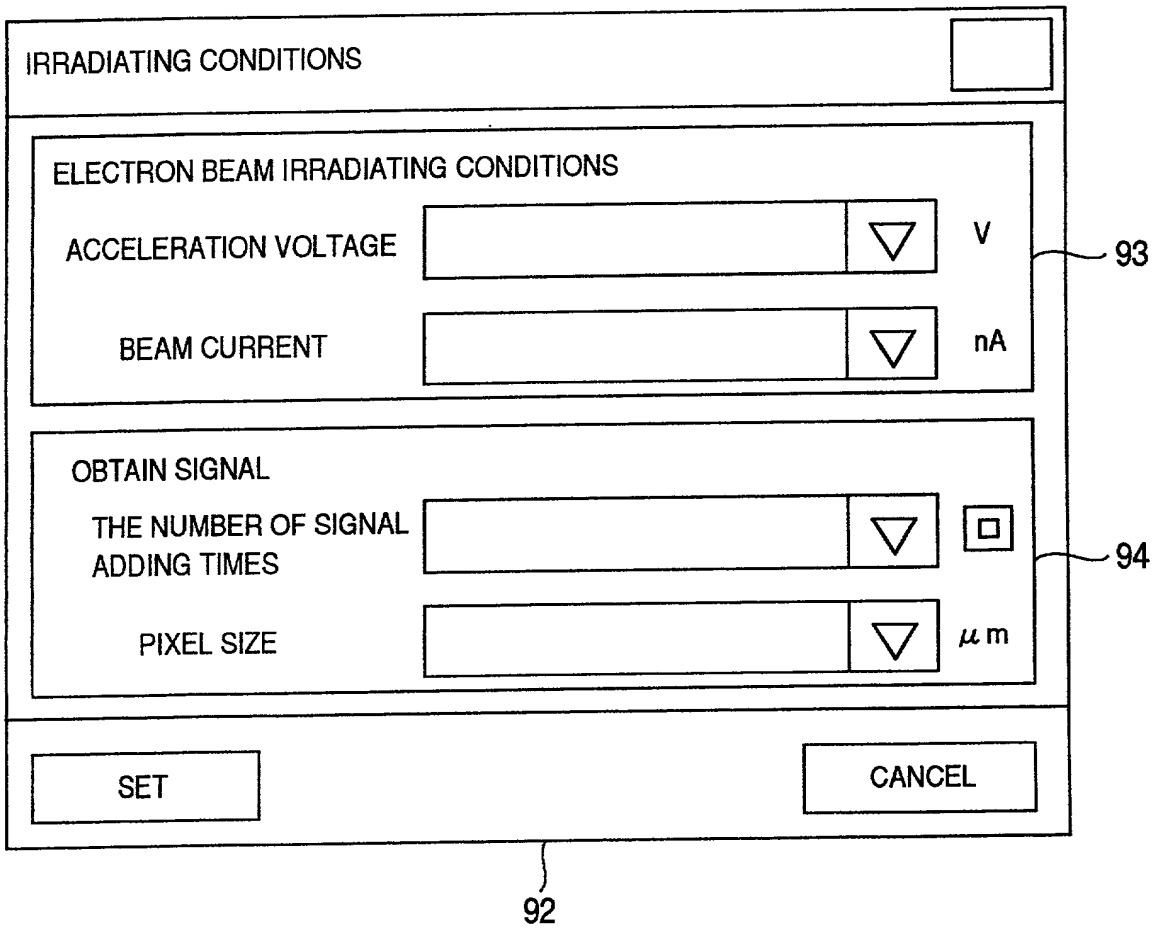

IRRADIATING CONDITIONS
ELECTRON BEAM IRRADIATING CONDITIONS
ACCELERATION VOLTAGE
V
BEAM CURRENT
nA
93
OBTAIN SIGNAL
THE NUMBER OF SIGNAL ADDING TIMES
PIXEL SIZE
μm
94
SET
CANCEL
92

FIG.16

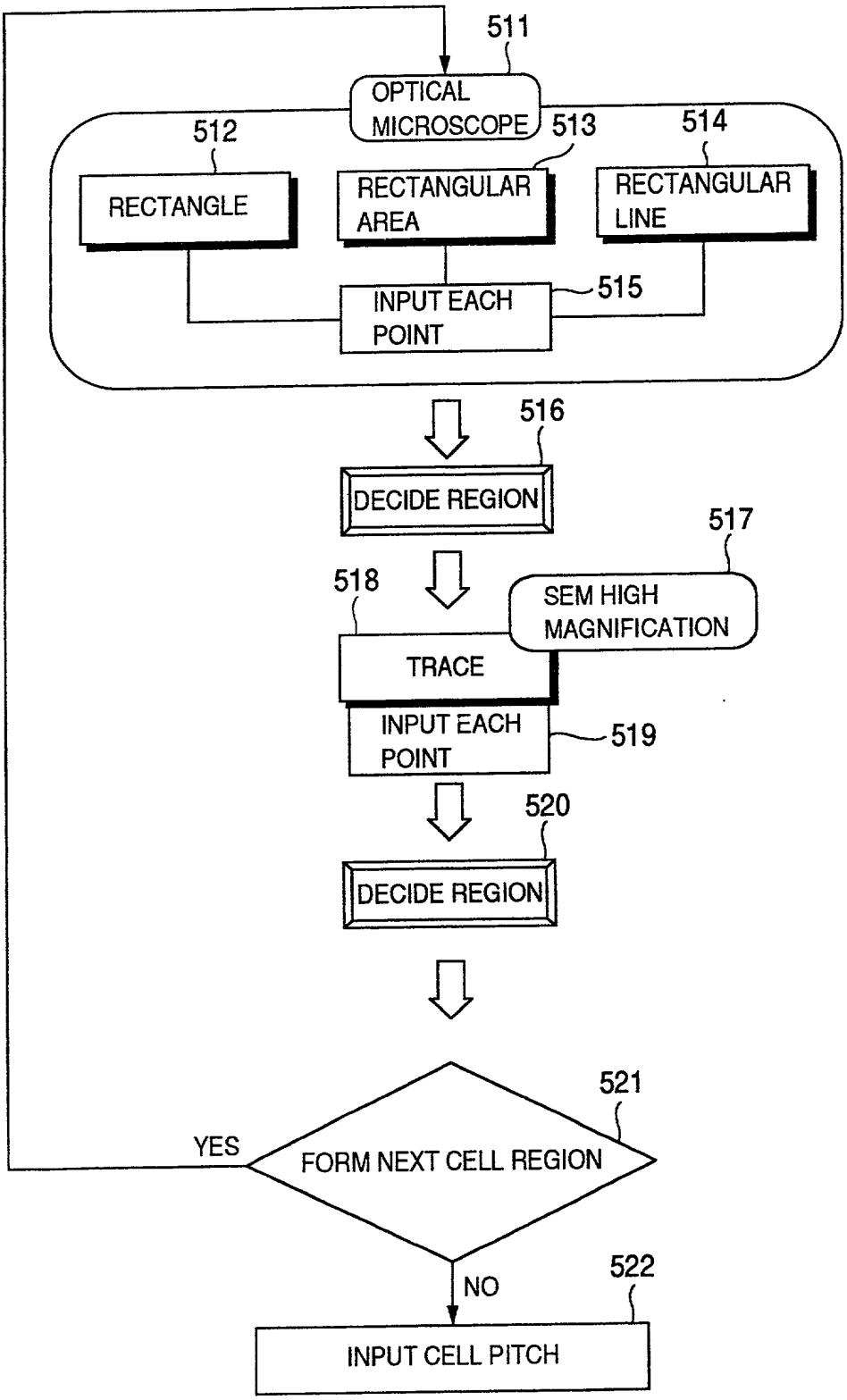

511
OPTICAL MICROSCOPE
512
RECTANGLE
513
RECTANGULAR AREA
514
RECTANGULAR LINE
INPUT EACH POINT
515
516
DECIDE REGION
517
SEM HIGH MAGNIFICATION
518
TRACE
INPUT EACH POINT
519
520
DECIDE REGION
521
YES
FORM NEXT CELL REGION
NO
522
INPUT CELL PITCH

FIG.17

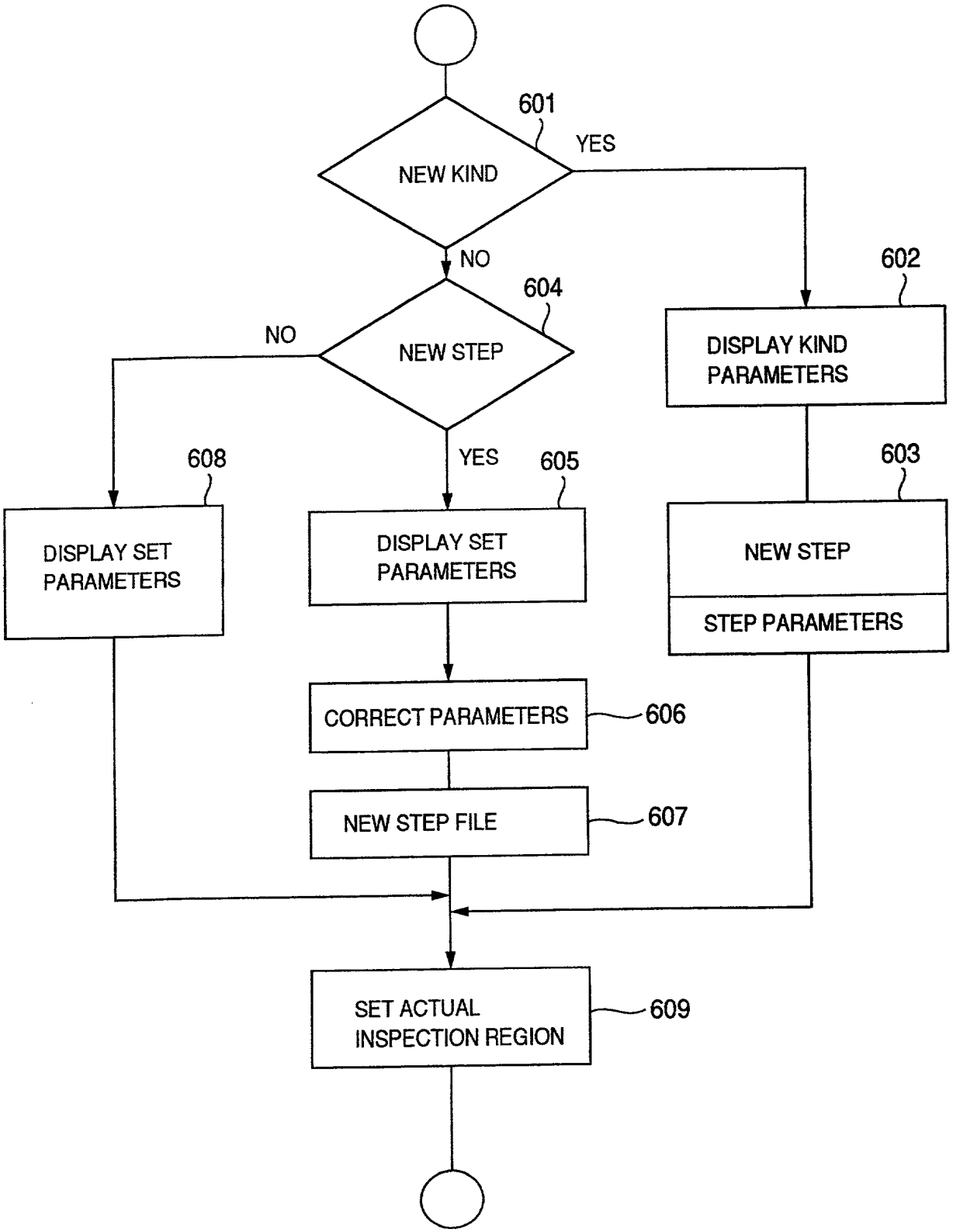

601
NEW KIND
YES
NO
602
604
NEW STEP
NO
DISPLAY KIND PARAMETERS
608
YES
605
603
DISPLAY SET PARAMETERS
DISPLAY SET PARAMETERS
NEW STEP
STEP PARAMETERS
CORRECT PARAMETERS
606
NEW STEP FILE
607
SET ACTUAL INSPECTION REGION
609

FIG.18

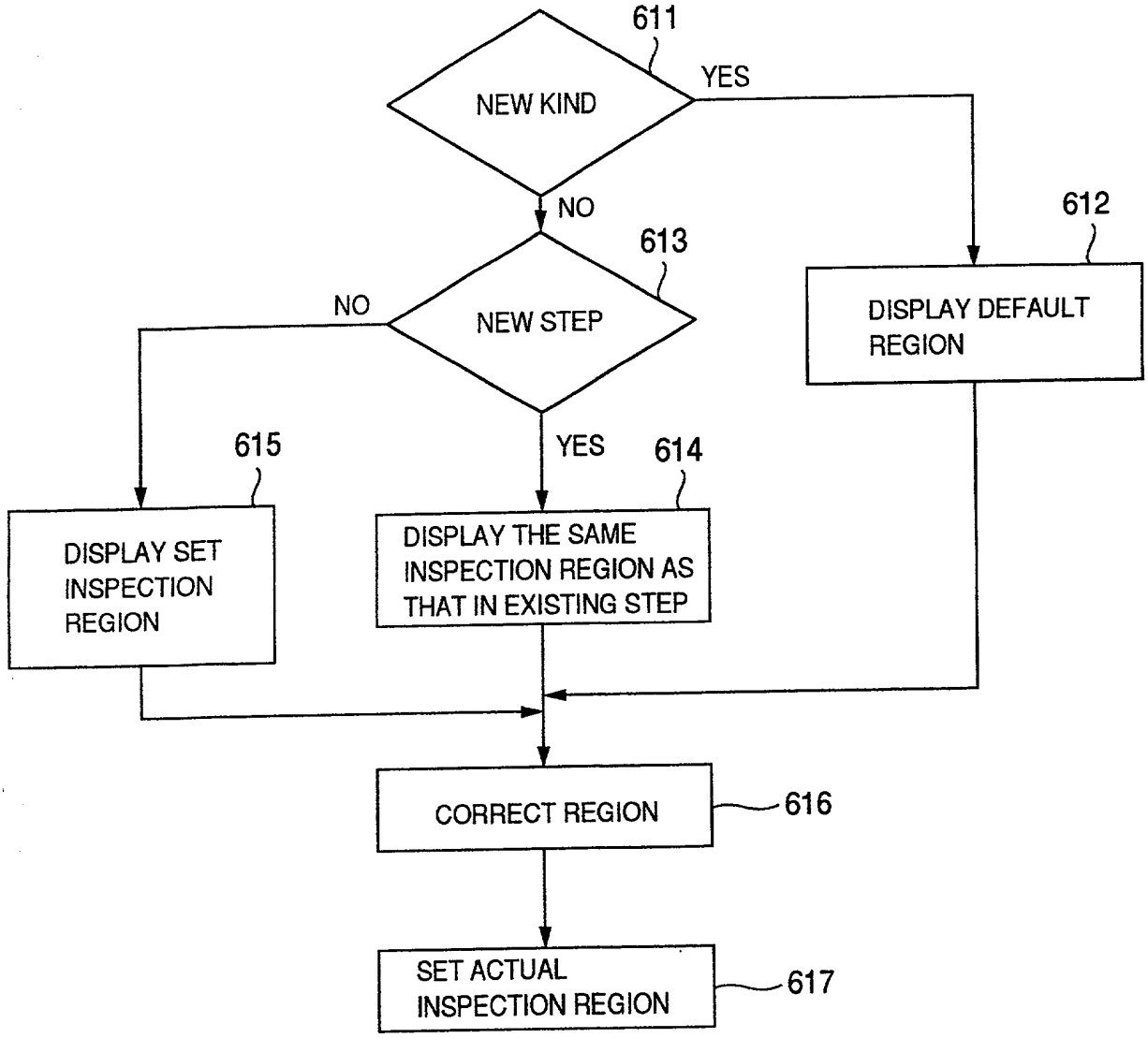

611
NEW KIND
YES
NO
612
613
NEW STEP
NO
DISPLAY DEFAULT REGION
615
YES
614
DISPLAY SET INSPECTION REGION
DISPLAY THE SAME INSPECTION REGION AS THAT IN EXISTING STEP
CORRECT REGION
616
SET ACTUAL INSPECTION REGION
617

FIG.19

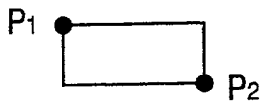

P1
P2

FIG.20

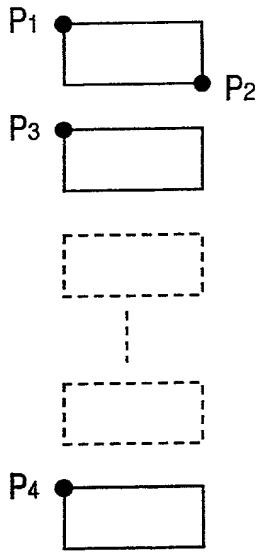


FIG.21

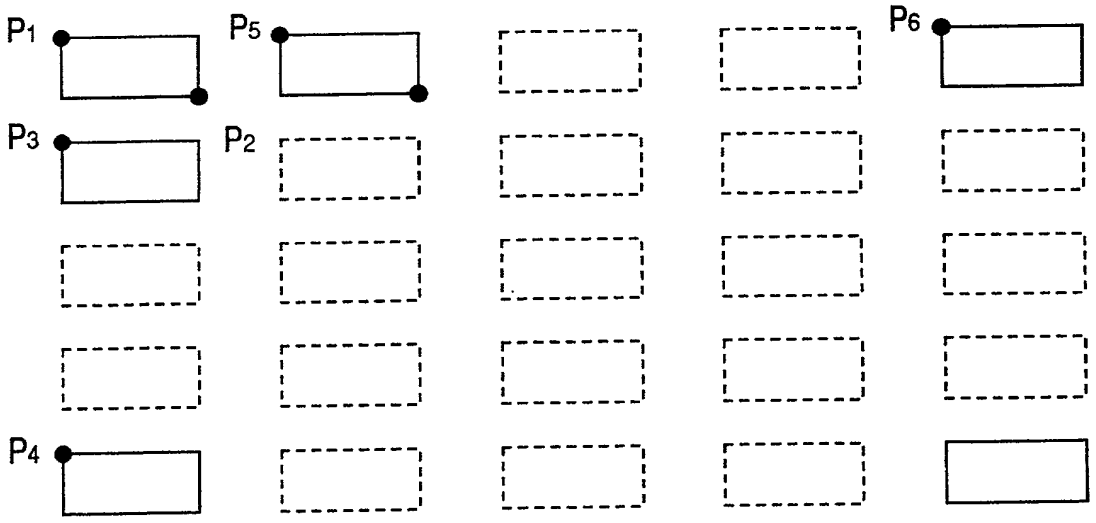


FIG.22

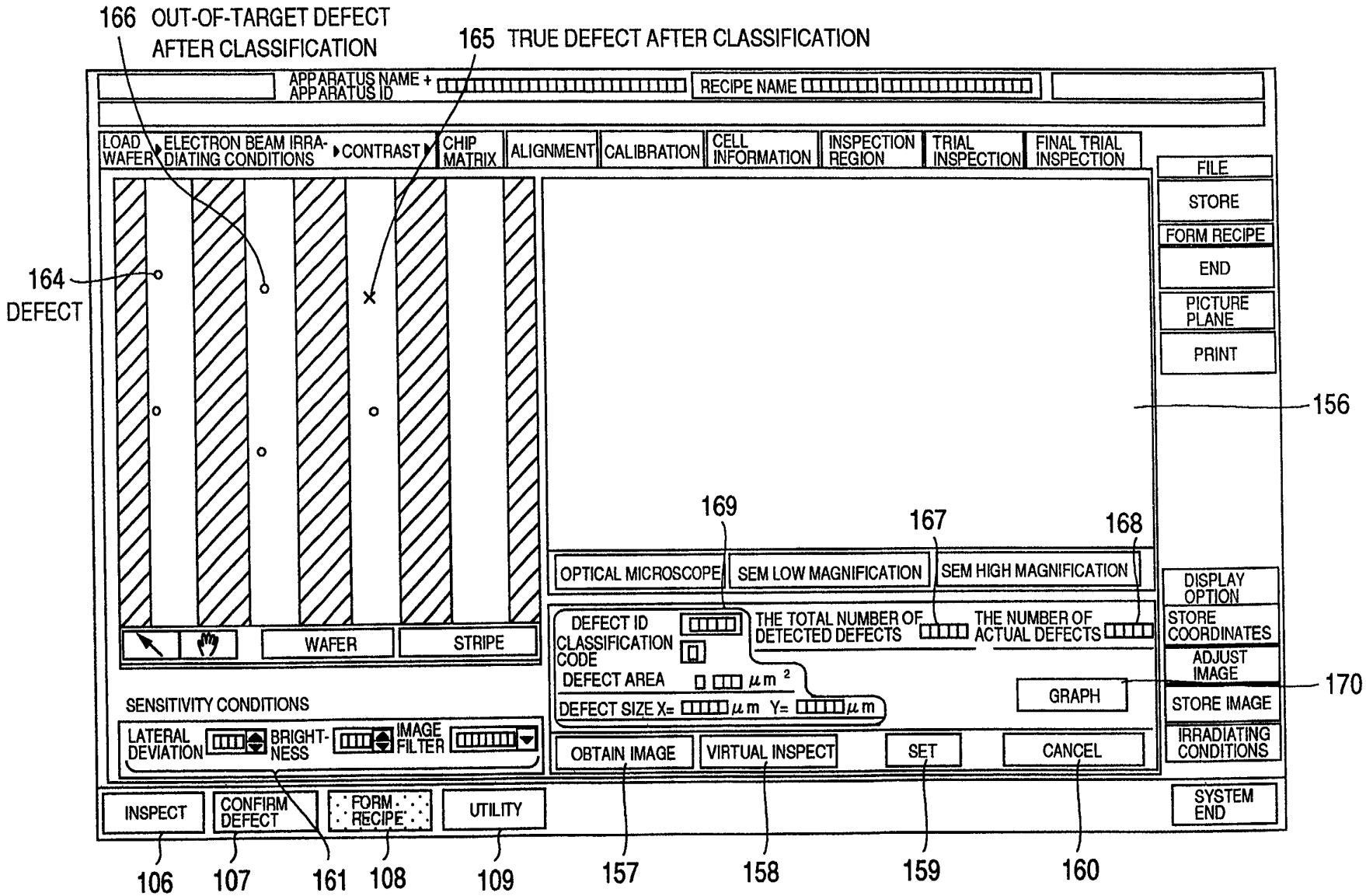

166 OUT-OF-TARGET DEFECT AFTER CLASSIFICATION
165 TRUE DEFECT AFTER CLASSIFICATION
APPARATUS NAME + APPARATUS ID
RECIPE NAME
LOAD WAFER
ELECTRON BEAM IRRADIATING CONDITIONS
CONTRAST
CHIP MATRIX
ALIGNMENT
CALIBRATION
CELL INFORMATION
INSPECTION REGION
TRIAL INSPECTION
FINAL TRIAL INSPECTION
FILE
STORE
FORM RECIPE
END
PICTURE PLANE
PRINT
164 DEFECT
156
169
167
168
OPTICAL MICROSCOPE
SEM LOW MAGNIFICATION
SEM HIGH MAGNIFICATION
DISPLAY OPTION
STORE COORDINATES
ADJUST IMAGE
STORE IMAGE
IRRADIATING CONDITIONS
WAFER
STRIPE
DEFECT ID
CLASSIFICATION CODE
THE TOTAL NUMBER OF DETECTED DEFECTS
THE NUMBER OF ACTUAL DEFECTS
DEFECT AREA
μm²
DEFECT SIZE X= μm Y= μm
GRAPH
170
SENSITIVITY CONDITIONS
LATERAL DEVIATION
BRIGHTNESS
IMAGE FILTER
OBTAIN IMAGE
VIRTUAL INSPECT
SET
CANCEL
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
SYSTEM END
106
107
161
108
109
157
158
159
160

FIG.23

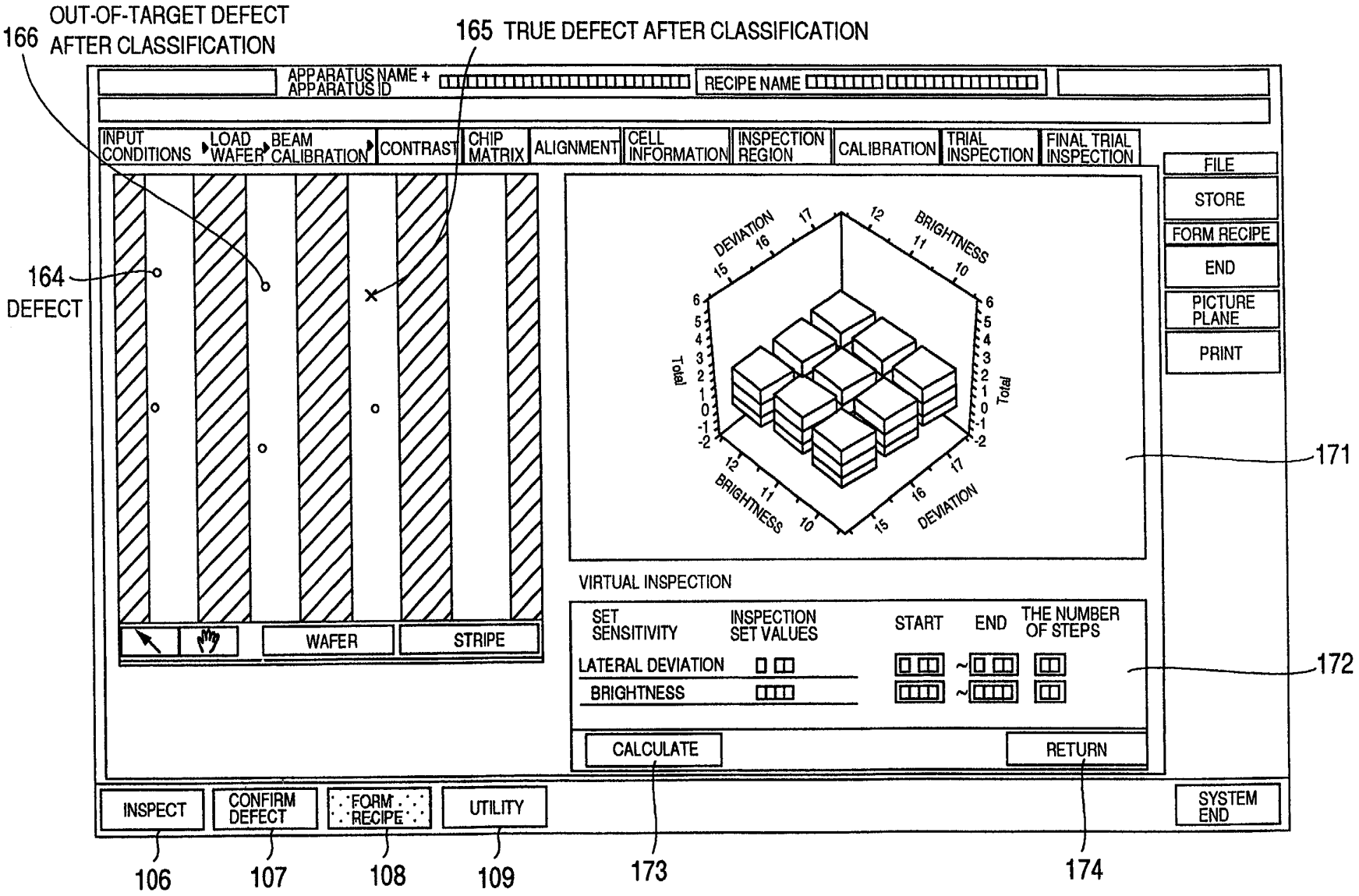
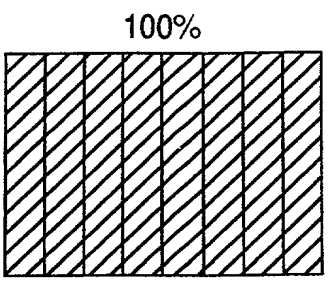
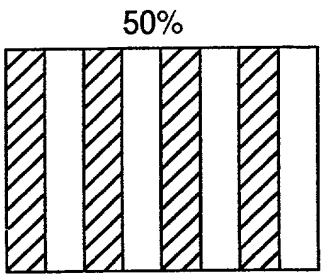

OUT-OF-TARGET DEFECT AFTER CLASSIFICATION
166
165 TRUE DEFECT AFTER CLASSIFICATION
APPARATUS NAME + APPARATUS ID
RECIPE NAME
INPUT CONDITIONS
LOAD WAFER
BEAM CALIBRATION
CONTRAST
CHIP MATRIX
ALIGNMENT
CELL INFORMATION
INSPECTION REGION
CALIBRATION
TRIAL INSPECTION
FINAL TRIAL INSPECTION
FILE
STORE
FORM RECIPE
END
PICTURE PLANE
PRINT
164
DEFECT
WAFER
STRIPE
DEVIATION
BRIGHTNESS
Total
171
VIRTUAL INSPECTION
SET SENSITIVITY
INSPECTION SET VALUES
START
END
THE NUMBER OF STEPS
LATERAL DEVIATION
BRIGHTNESS
172
CALCULATE
RETURN
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
SYSTEM END
106
107
108
109
173
174

FIG.24A



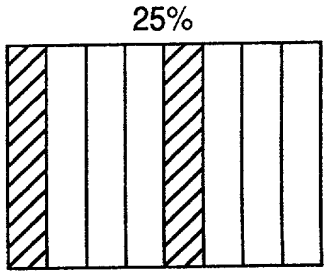
SCAN ALL
STRIPES

FIG.24B



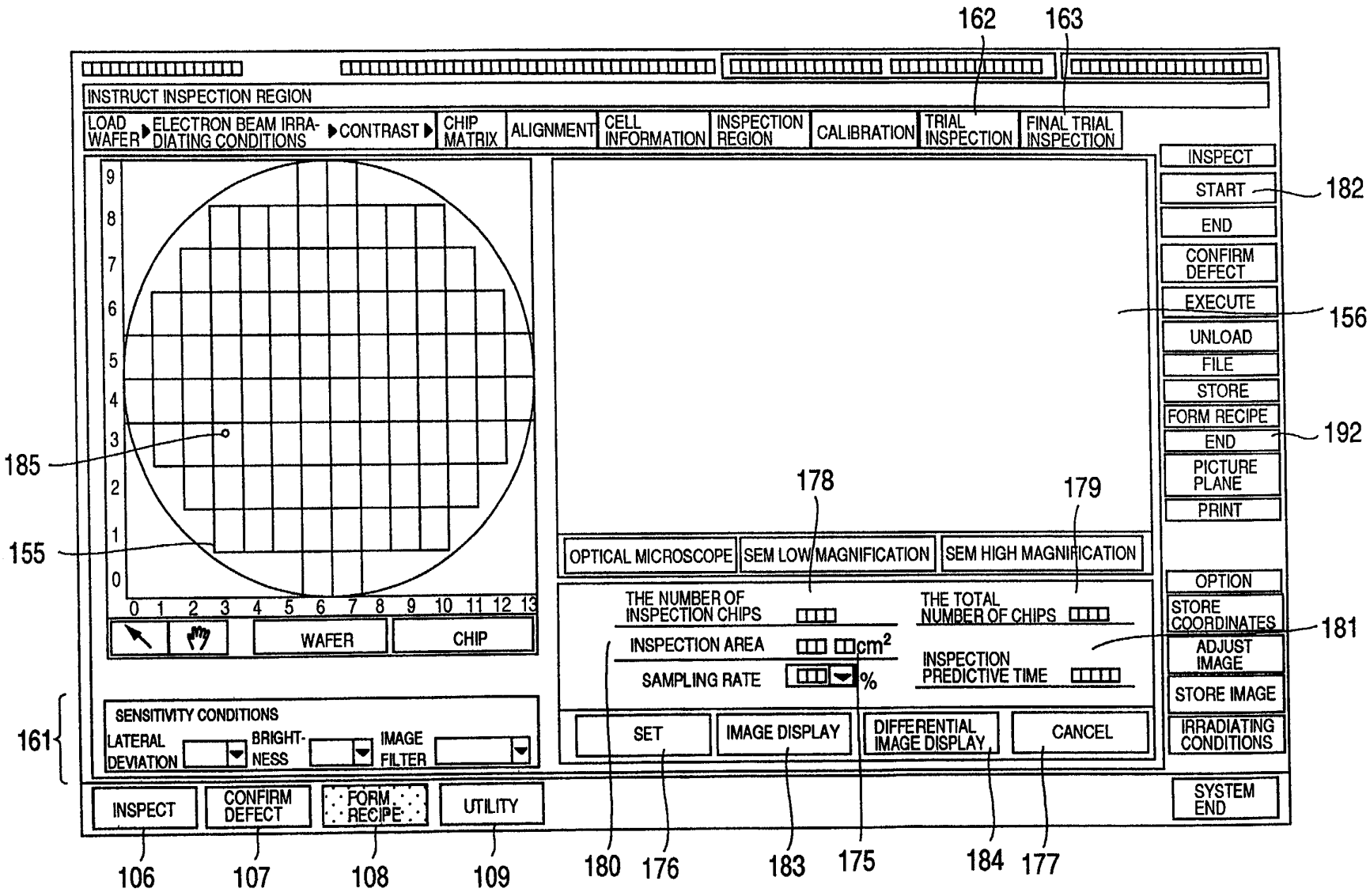
SCAN EVERY
OTHER STRIPE

FIG.24C



SCAN EVERY
FOURTH STRIPE

FIG.25


INSTRUCT INSPECTION REGION
LOAD WAFER
ELECTRON BEAM IRRADIATING CONDITIONS
CONTRAST
CHIP MATRIX
ALIGNMENT
CELL INFORMATION
INSPECTION REGION
CALIBRATION
TRIAL INSPECTION
FINAL TRIAL INSPECTION
INSPECT
START
END
CONFIRM DEFECT
EXECUTE
UNLOAD
FILE
STORE
FORM RECIPE
END
PICTURE PLANE
PRINT
OPTICAL MICROSCOPE
SEM LOW MAGNIFICATION
SEM HIGH MAGNIFICATION
THE NUMBER OF INSPECTION CHIPS
THE TOTAL NUMBER OF CHIPS
INSPECTION AREA
cm2
SAMPLING RATE
%
INSPECTION PREDICTIVE TIME
WAFER
CHIP
SENSITIVITY CONDITIONS
LATERAL DEVIATION
BRIGHTNESS
IMAGE FILTER
SET
IMAGE DISPLAY
DIFFERENTIAL IMAGE DISPLAY
CANCEL
OPTION
STORE COORDINATES
ADJUST IMAGE
STORE IMAGE
IRRADIATING CONDITIONS
SYSTEM END
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
162
163
182
156
192
185
178
179
155
181
161
106
107
108
109
180
176
183
175
184
177

EP 0 822 580 A2

FIG.26

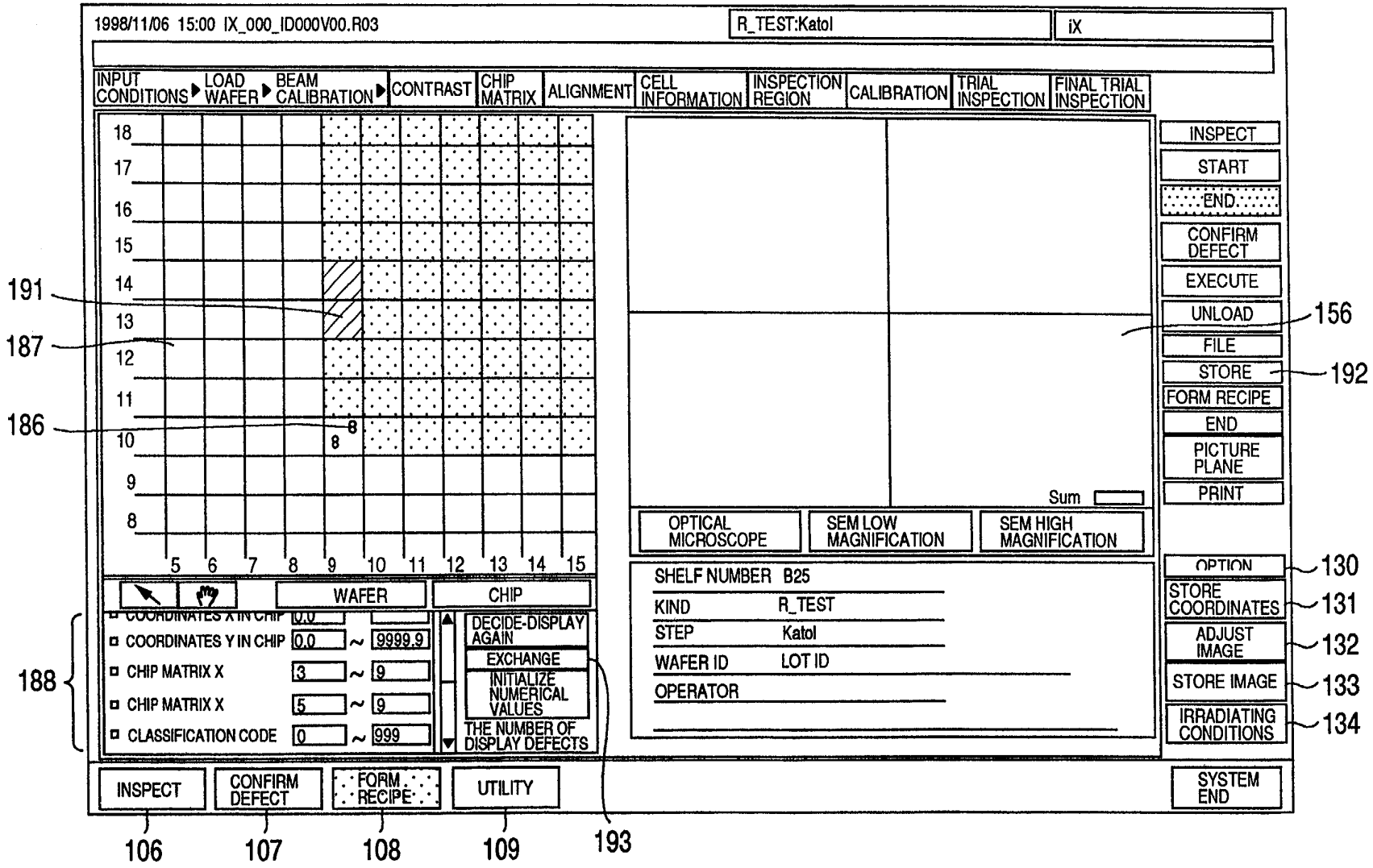
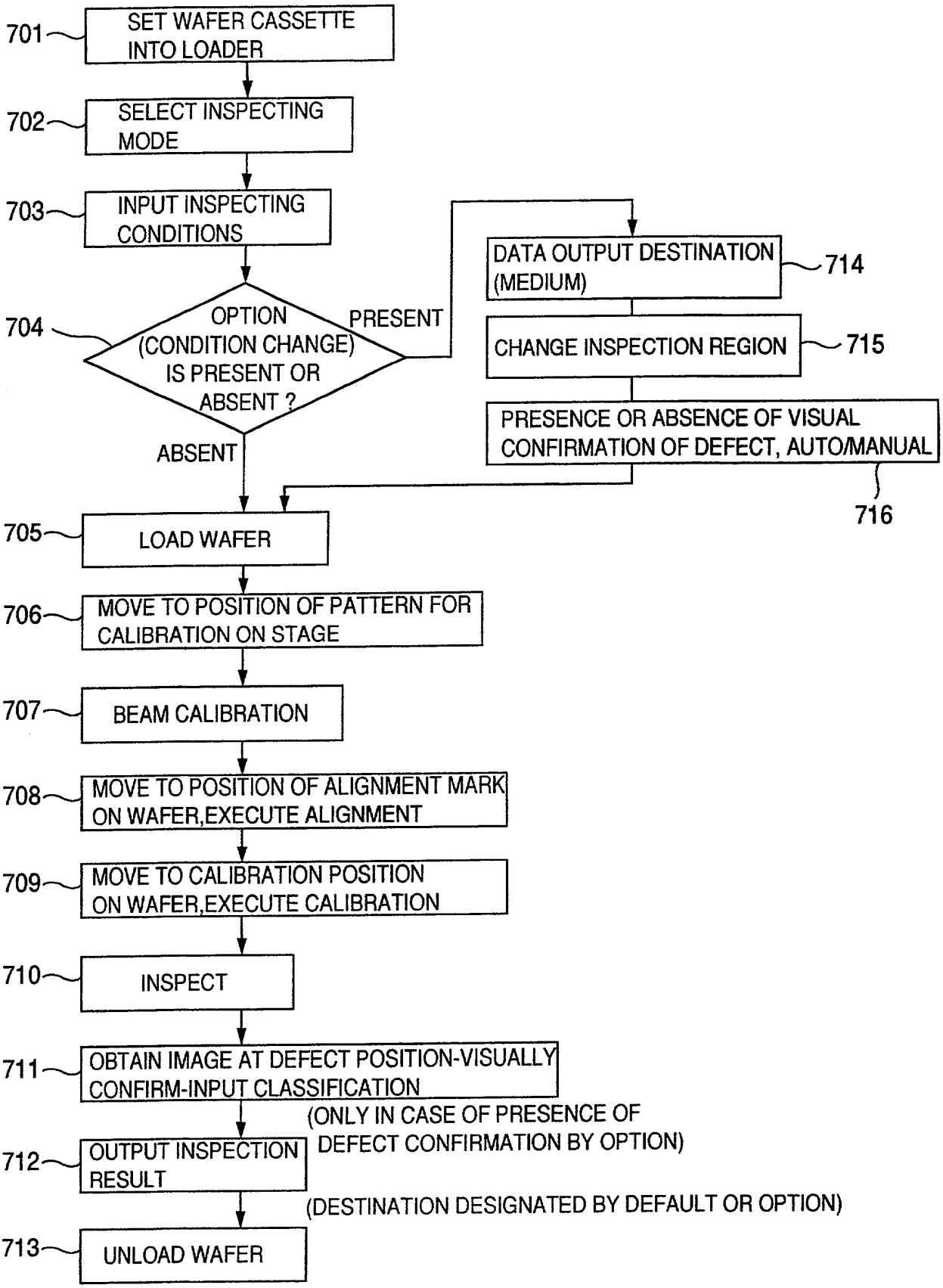


FIG.27


701
SET WAFER CASSETTE INTO LOADER
702
SELECT INSPECTING MODE
703
INPUT INSPECTING CONDITIONS
704
OPTION (CONDITION CHANGE) IS PRESENT OR ABSENT ?
PRESENT
ABSENT
DATA OUTPUT DESTINATION (MEDIUM)
714
CHANGE INSPECTION REGION
715
PRESENCE OR ABSENCE OF VISUAL CONFIRMATION OF DEFECT, AUTO/MANUAL
716
705
LOAD WAFER
706
MOVE TO POSITION OF PATTERN FOR CALIBRATION ON STAGE
707
BEAM CALIBRATION
708
MOVE TO POSITION OF ALIGNMENT MARK ON WAFER,EXECUTE ALIGNMENT
709
MOVE TO CALIBRATION POSITION ON WAFER,EXECUTE CALIBRATION
710
INSPECT
711
OBTAIN IMAGE AT DEFECT POSITION-VISUALLY CONFIRM-INPUT CLASSIFICATION
(ONLY IN CASE OF PRESENCE OF DEFECT CONFIRMATION BY OPTION)
712
OUTPUT INSPECTION RESULT
(DESTINATION DESIGNATED BY DEFAULT OR OPTION)
713
UNLOAD WAFER

TOTHO" 0222860

FIG.28

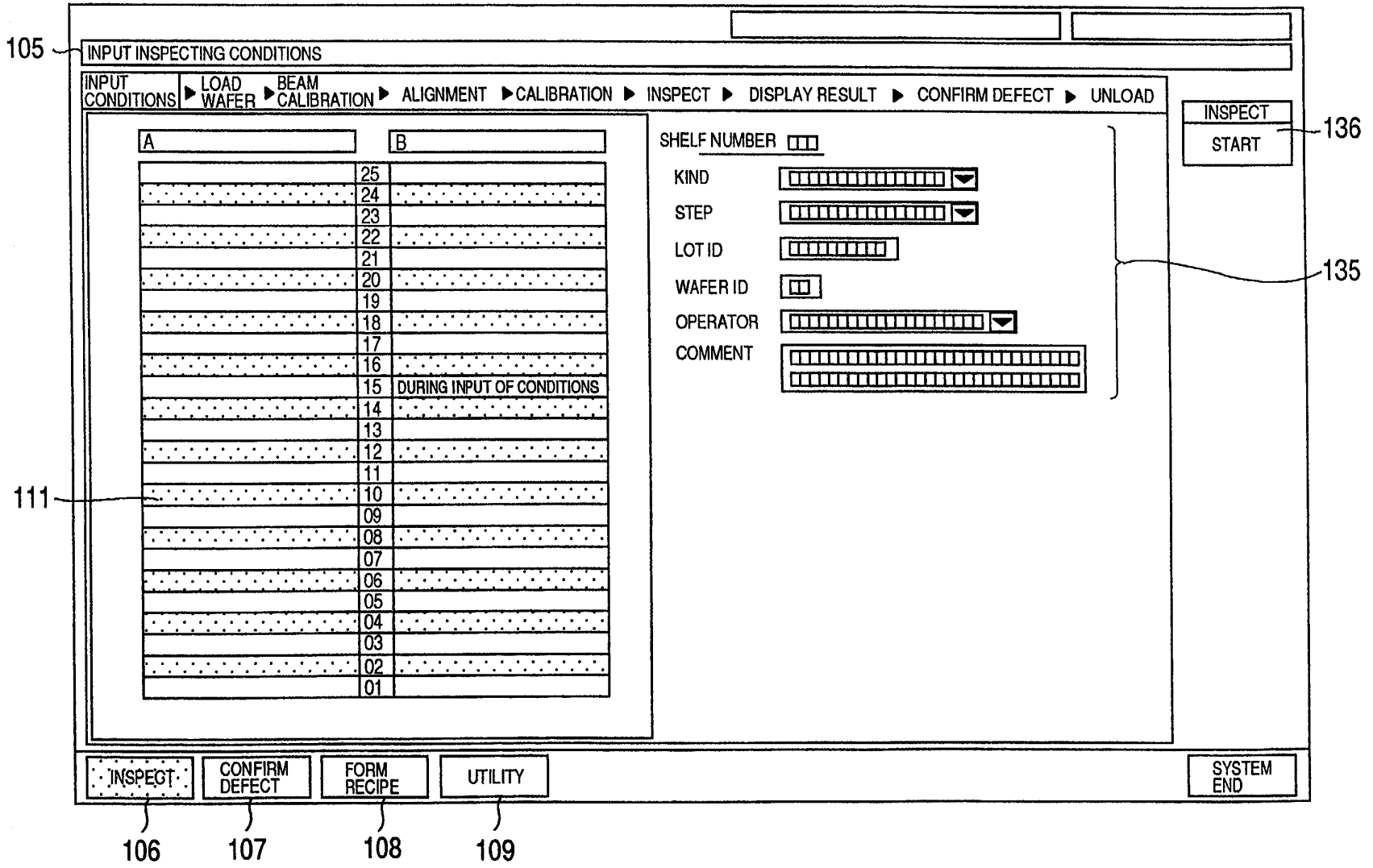


FIG.29

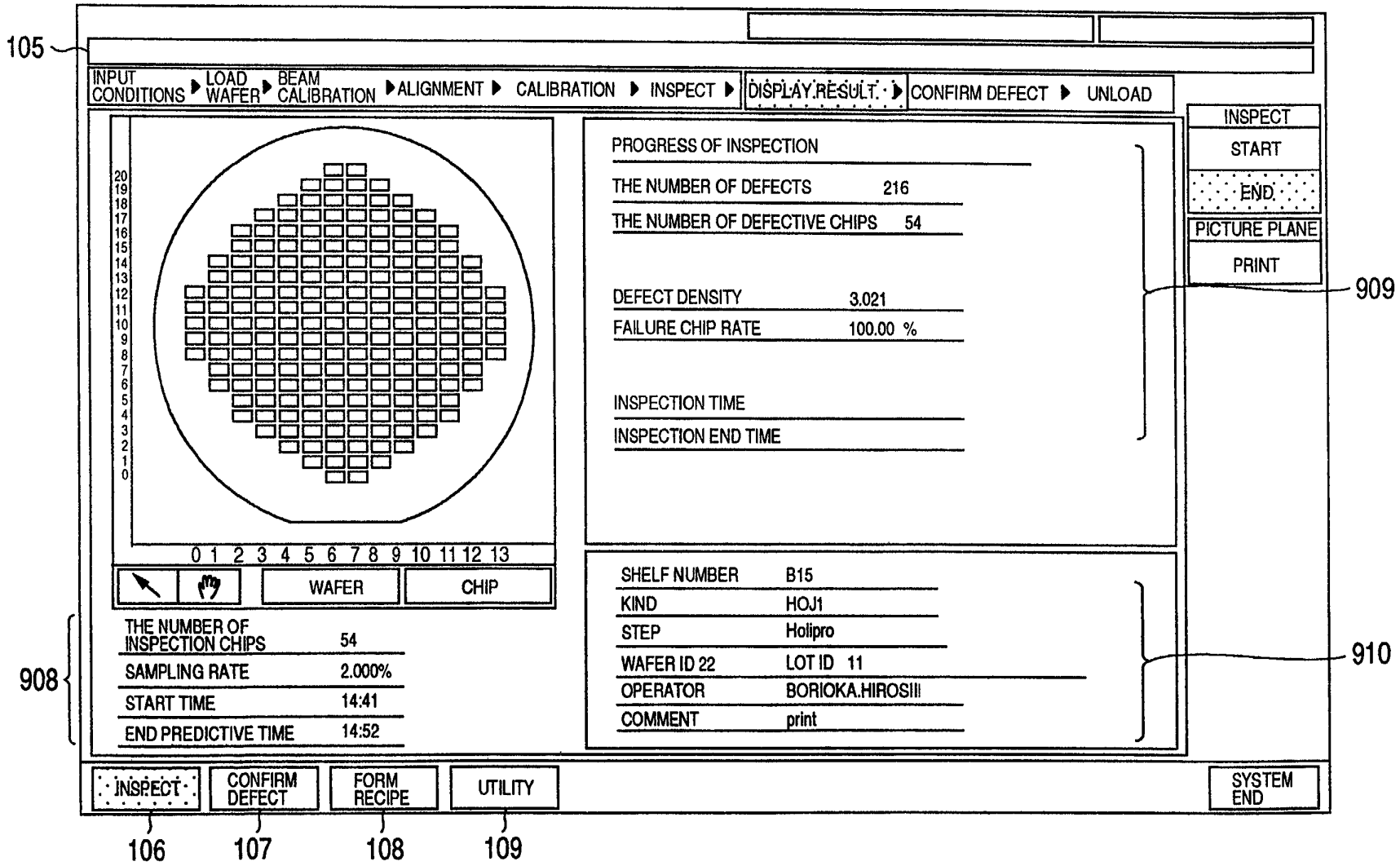

105
INPUT CONDITIONS
LOAD WAFER
BEAM CALIBRATION
ALIGNMENT
CALIBRATION
INSPECT
DISPLAY RESULT
CONFIRM DEFECT
UNLOAD
INSPECT
START
END
PICTURE PLANE
PRINT
PROGRESS OF INSPECTION
THE NUMBER OF DEFECTS 216
THE NUMBER OF DEFECTIVE CHIPS 54
DEFECT DENSITY 3.021
FAILURE CHIP RATE 100.00 %
INSPECTION TIME
INSPECTION END TIME
909
0 1 2 3 4 5 6 7 8 9 10 11 12 13
WAFER
CHIP
THE NUMBER OF INSPECTION CHIPS 54
SAMPLING RATE 2.000%
START TIME 14:41
END PREDICTIVE TIME 14:52
908
SHELF NUMBER B15
KIND HOJ1
STEP Holipro
WAFER ID 22 LOT ID 11
OPERATOR BORIOKA.HIROSHI
COMMENT print
910
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
SYSTEM END
106
107
108
109

FIG.30

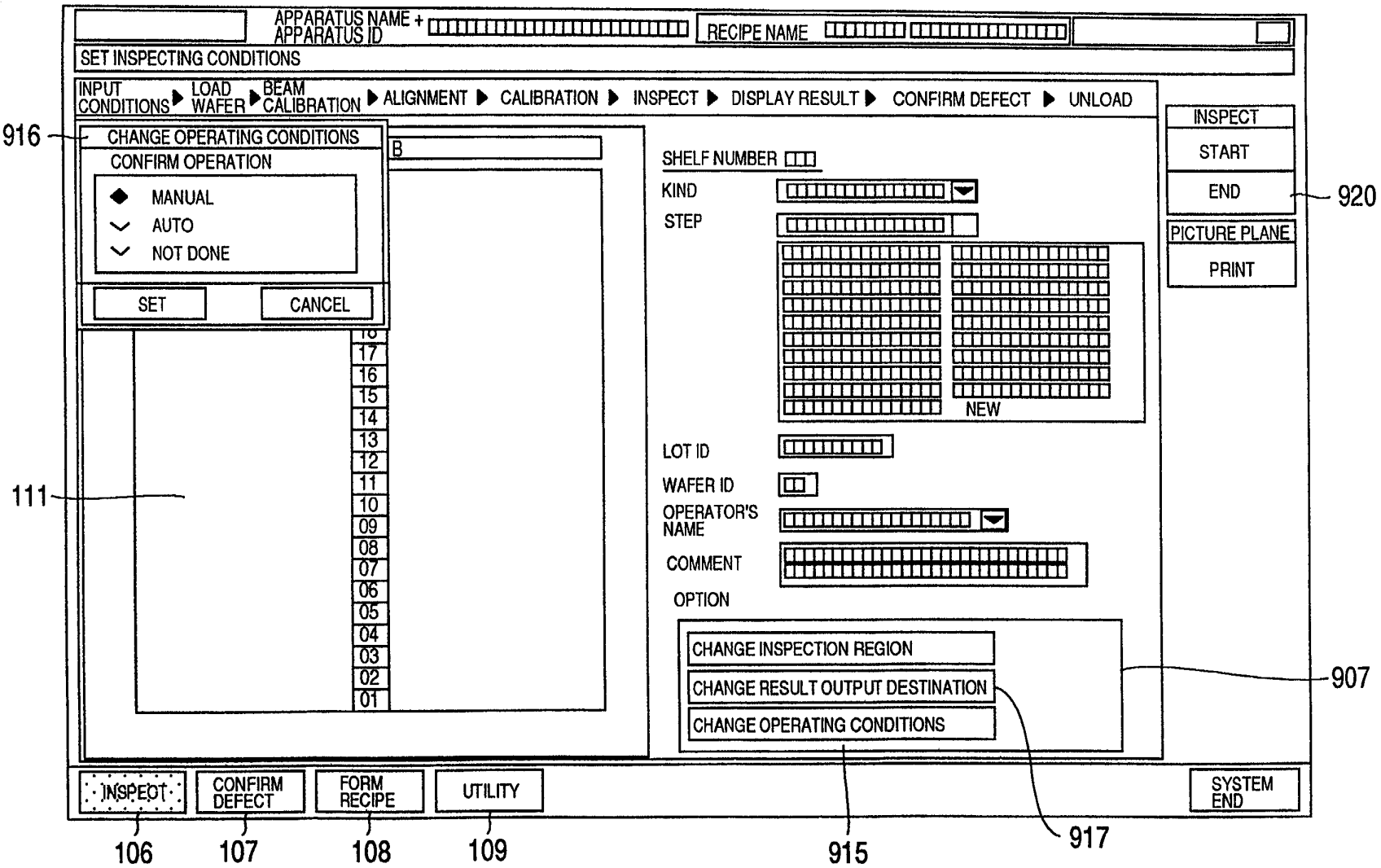

APPARATUS NAME + APPARATUS ID
RECIPE NAME
SET INSPECTING CONDITIONS
INPUT CONDITIONS
LOAD WAFER
BEAM CALIBRATION
ALIGNMENT
CALIBRATION
INSPECT
DISPLAY RESULT
CONFIRM DEFECT
UNLOAD
916
CHANGE OPERATING CONDITIONS
CONFIRM OPERATION
MANUAL
AUTO
NOT DONE
SET
CANCEL
B
SHELF NUMBER
KIND
STEP
NEW
LOT ID
WAFER ID
OPERATOR'S NAME
COMMENT
OPTION
CHANGE INSPECTION REGION
CHANGE RESULT OUTPUT DESTINATION
CHANGE OPERATING CONDITIONS
INSPECT
START
END
PICTURE PLANE
PRINT
920
111
17
16
15
14
13
12
11
10
09
08
07
06
05
04
03
02
01
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
SYSTEM END
106
107
108
109
915
907
917

FIG.31

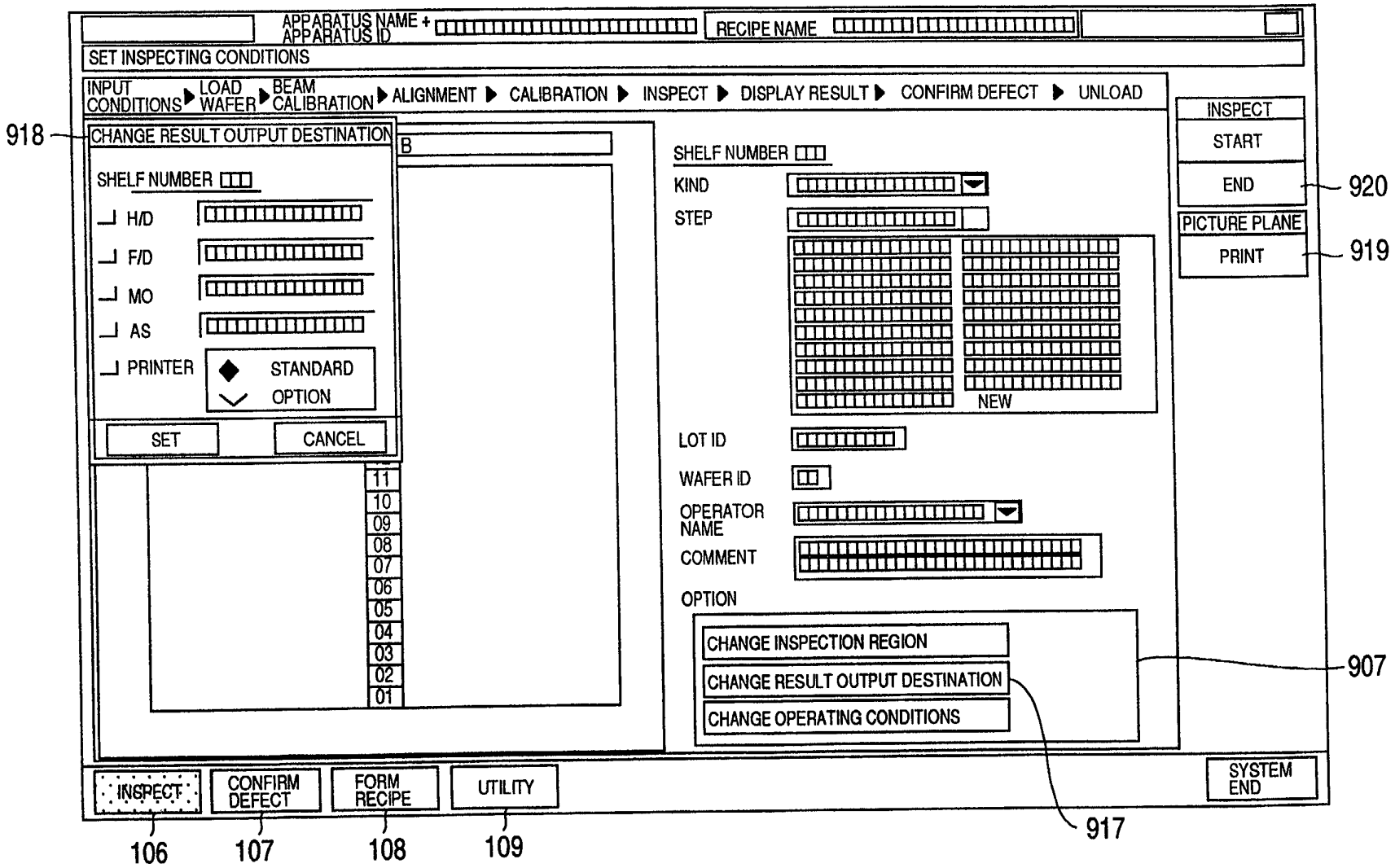

APPARATUS NAME + APPARATUS ID
RECIPE NAME
SET INSPECTING CONDITIONS
INPUT CONDITIONS
LOAD WAFER
BEAM CALIBRATION
ALIGNMENT
CALIBRATION
INSPECT
DISPLAY RESULT
CONFIRM DEFECT
UNLOAD
CHANGE RESULT OUTPUT DESTINATION
SHELF NUMBER
H/D
F/D
MO
AS
PRINTER
STANDARD
OPTION
SET
CANCEL
11
10
09
08
07
06
05
04
03
02
01
SHELF NUMBER
KIND
STEP
NEW
LOT ID
WAFER ID
OPERATOR NAME
COMMENT
OPTION
CHANGE INSPECTION REGION
CHANGE RESULT OUTPUT DESTINATION
CHANGE OPERATING CONDITIONS
INSPECT
START
END
PICTURE PLANE
PRINT
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
SYSTEM END
918
920
919
907
917
106
107
108
109

FIG.32

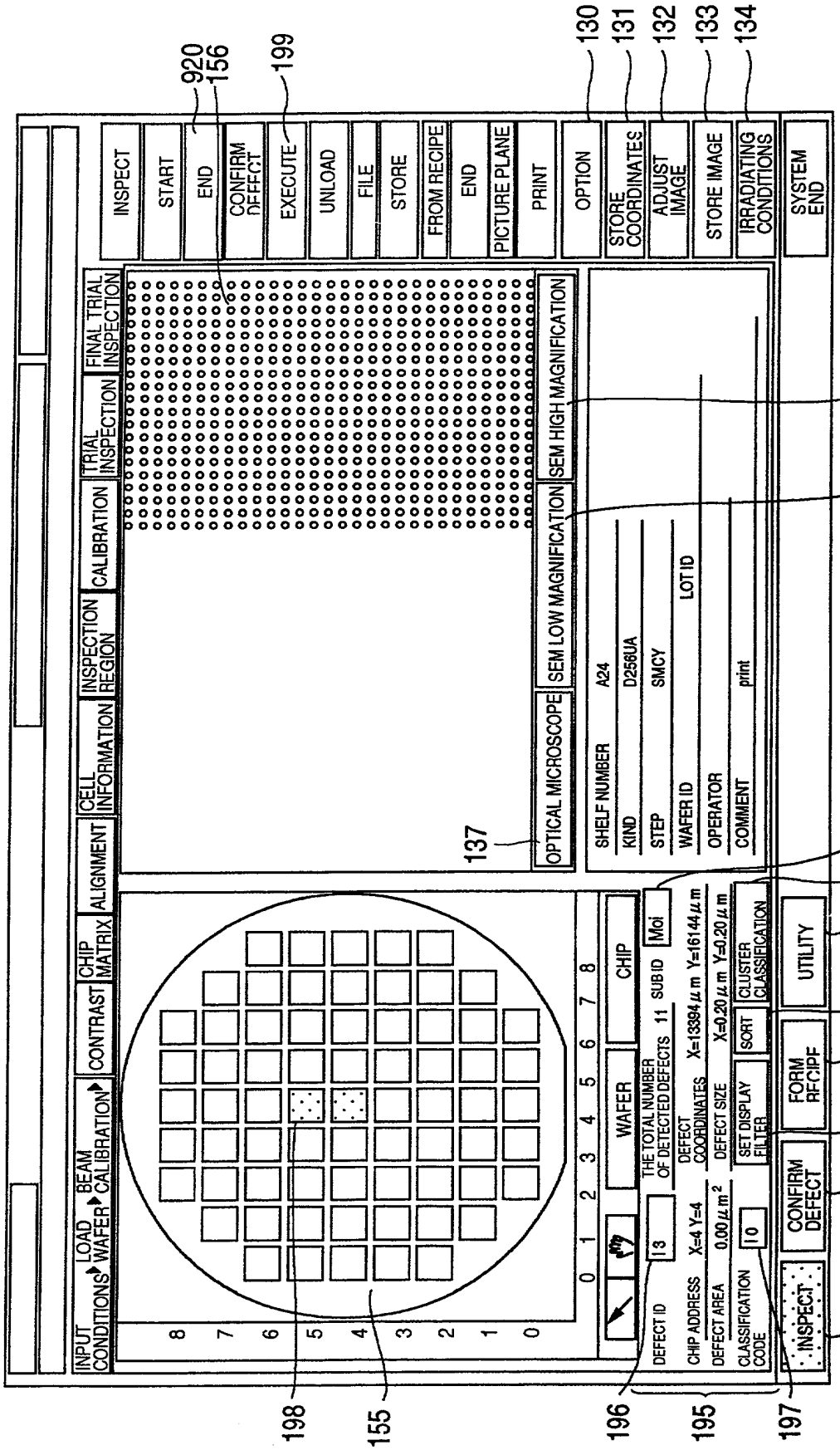

INPUT CONDITIONS
LOAD WAFER
BEAM CALIBRATION
CONTRAST
CHIP MATRIX
ALIGNMENT
CELL INFORMATION
INSPECTION REGION
CALIBRATION
TRIAL INSPECTION
FINAL TRIAL INSPECTION
INSPECT
START
END
CONFIRM DEFECT
EXECUTE
UNLOAD
FILE
STORE
FROM RECIPE
END
PICTURE PLANE
PRINT
OPTION
STORE COORDINATES
ADJUST IMAGE
STORE IMAGE
IRRADIATING CONDITIONS
SYSTEM END
OPTICAL MICROSCOPE
SEM LOW MAGNIFICATION
SEM HIGH MAGNIFICATION
SHELF NUMBER
KIND
STEP
WAFER ID
OPERATOR
COMMENT
LOT ID
A24
D256UA
SMCY
print
WAFER
CHIP
DEFECT ID
CHIP ADDRESS
DEFECT AREA
CLASSIFICATION CODE
THE TOTAL NUMBER OF DETECTED DEFECTS
SUB ID
DEFECT COORDINATES
DEFECT SIZE
SET DISPLAY FILTER
SORT
CLUSTER CLASSIFICATION
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
106
107
922
108
923
109
924
925
920
156
199
130
131
132
133
134
139
138
137
198
155
196
195
197

FIG.33

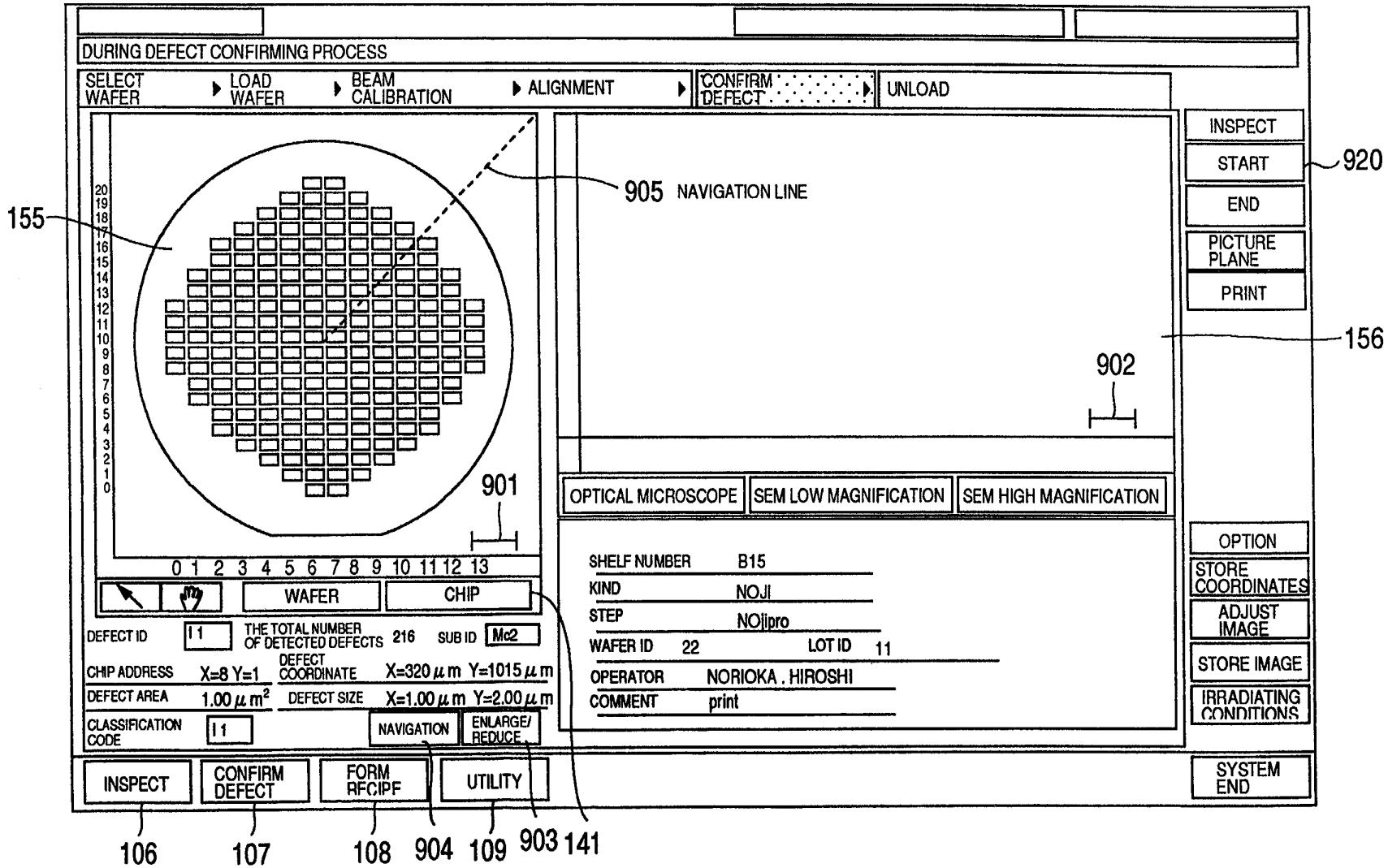
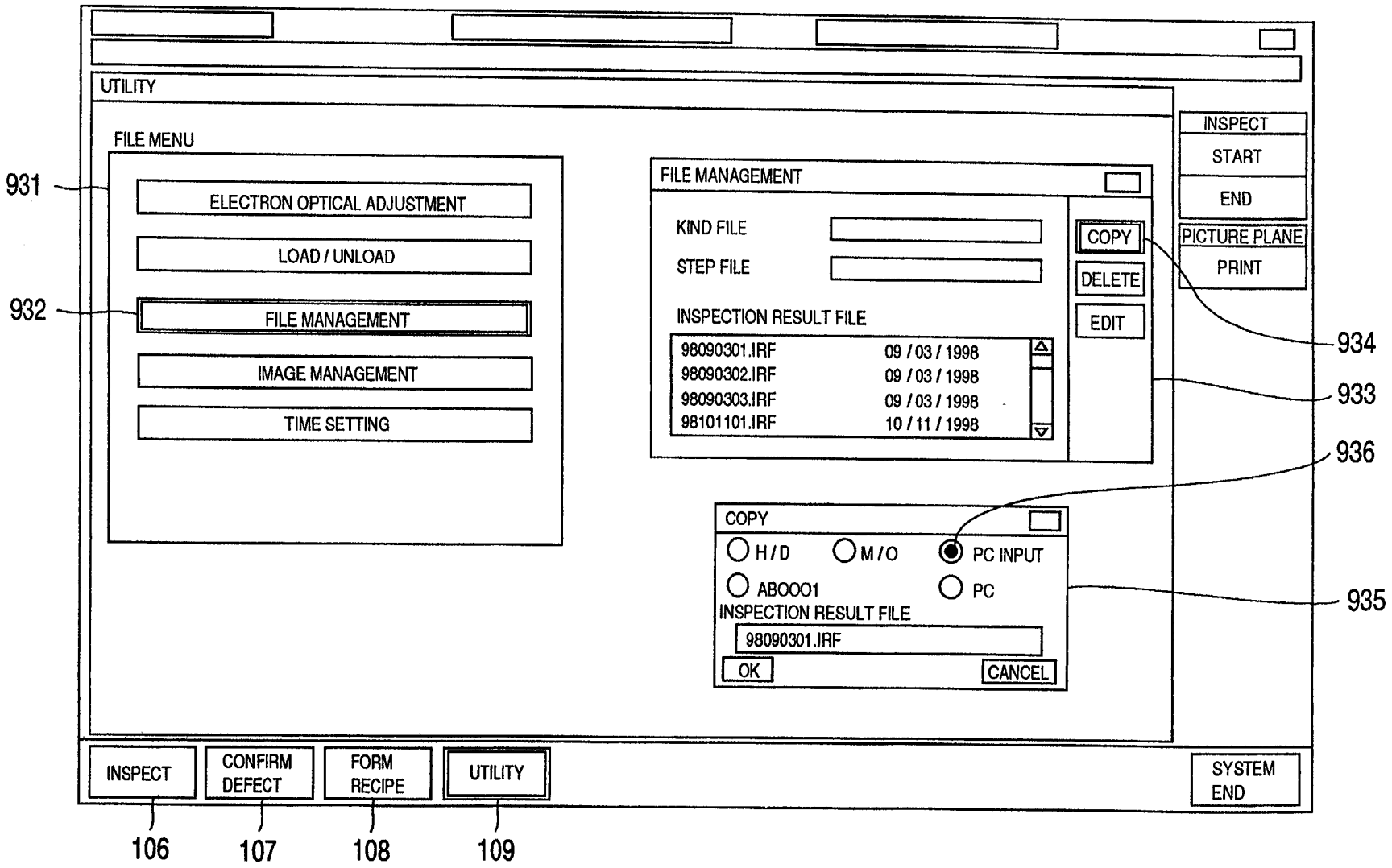

DURING DEFECT CONFIRMING PROCESS
SELECT WAFER
LOAD WAFER
BEAM CALIBRATION
ALIGNMENT
CONFIRM DEFECT
UNLOAD
INSPECT
START
END
PICTURE PLANE
PRINT
905 NAVIGATION LINE
155
920
156
902
901
OPTICAL MICROSCOPE
SEM LOW MAGNIFICATION
SEM HIGH MAGNIFICATION
WAFER
CHIP
SHELF NUMBER B15
KIND NOJI
STEP NOJIpro
WAFER ID 22
LOT ID 11
OPERATOR NORIOKA . HIROSHI
COMMENT print
OPTION
STORE COORDINATES
ADJUST IMAGE
STORE IMAGE
IRRADIATING CONDITIONS
DEFECT ID 11
THE TOTAL NUMBER OF DETECTED DEFECTS 216
SUB ID Mc2
CHIP ADDRESS X=8 Y=1
DEFECT COORDINATE X=320 μm Y=1015 μm
DEFECT AREA 1.00 μm²
DEFECT SIZE X=1.00 μm Y=2.00 μm
CLASSIFICATION CODE 11
NAVIGATION
ENLARGE/ REDUCE
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
SYSTEM END
106
107
108
904
109
903
141

FIG.34


UTILITY
FILE MENU
931
ELECTRON OPTICAL ADJUSTMENT
LOAD / UNLOAD
932
FILE MANAGEMENT
IMAGE MANAGEMENT
TIME SETTING
FILE MANAGEMENT
KIND FILE
STEP FILE
INSPECTION RESULT FILE
98090301.IRF 09 / 03 / 1998
98090302.IRF 09 / 03 / 1998
98090303.IRF 09 / 03 / 1998
98101101.IRF 10 / 11 / 1998
COPY
DELETE
EDIT
934
933
936
COPY
H / D
M / O
PC INPUT
ABOOO1
PC
935
INSPECTION RESULT FILE
98090301.IRF
OK
CANCEL
INSPECT
START
END
PICTURE PLANE
PRINT
INSPECT
CONFIRM DEFECT
FORM RECIPE
UTILITY
SYSTEM END
106
107
108
109

TOKYO 02626860

FIG.35

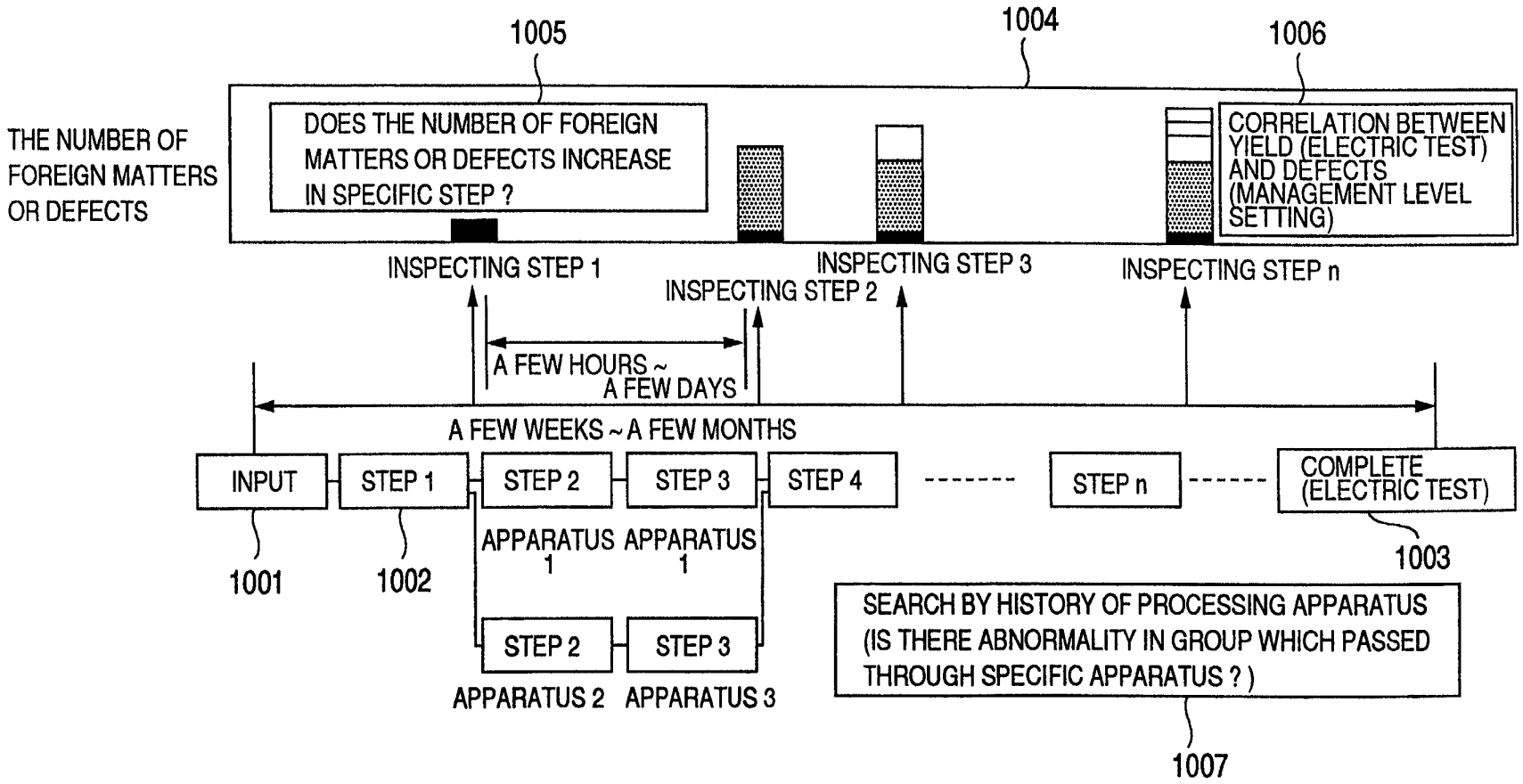


FIG.36

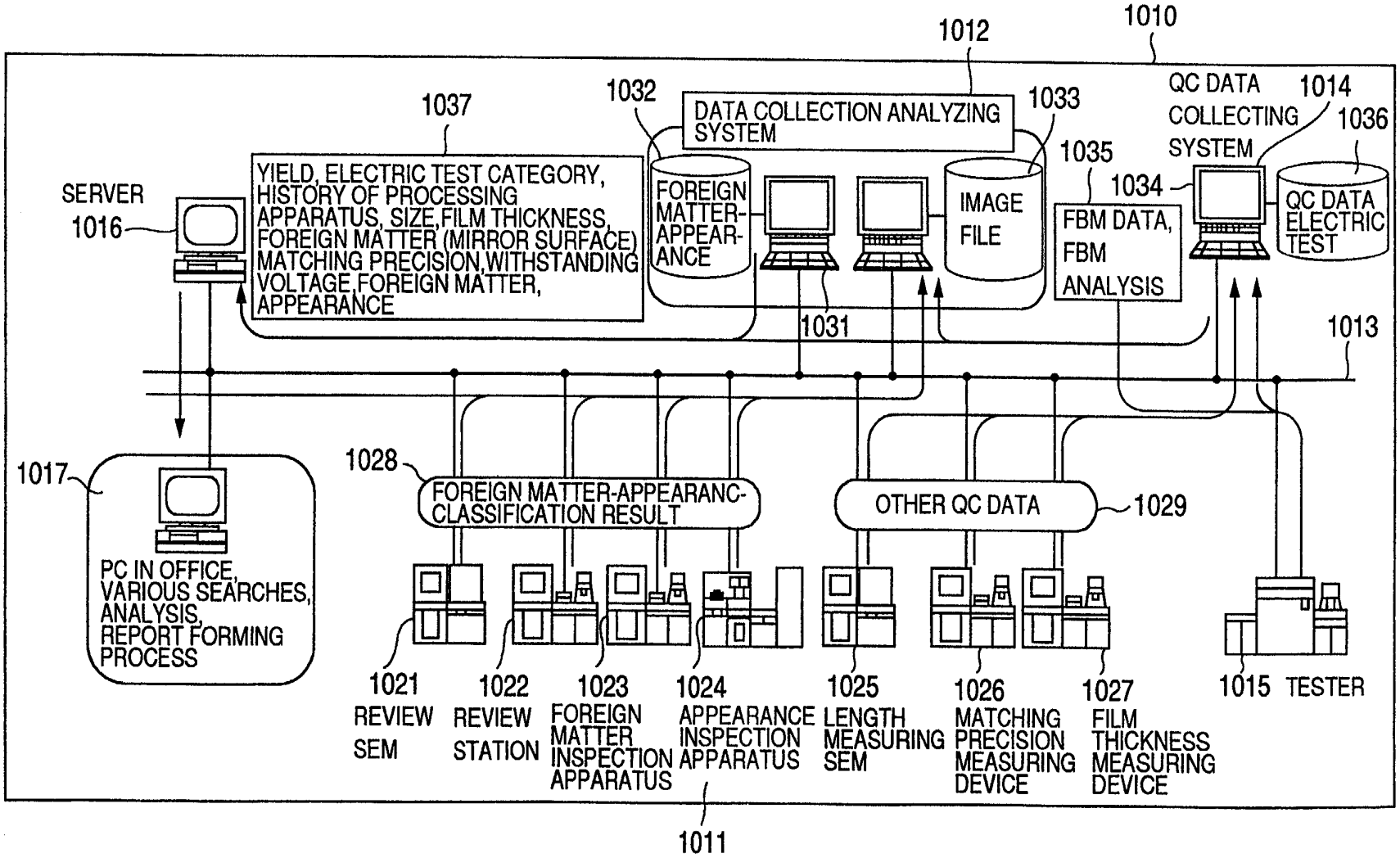
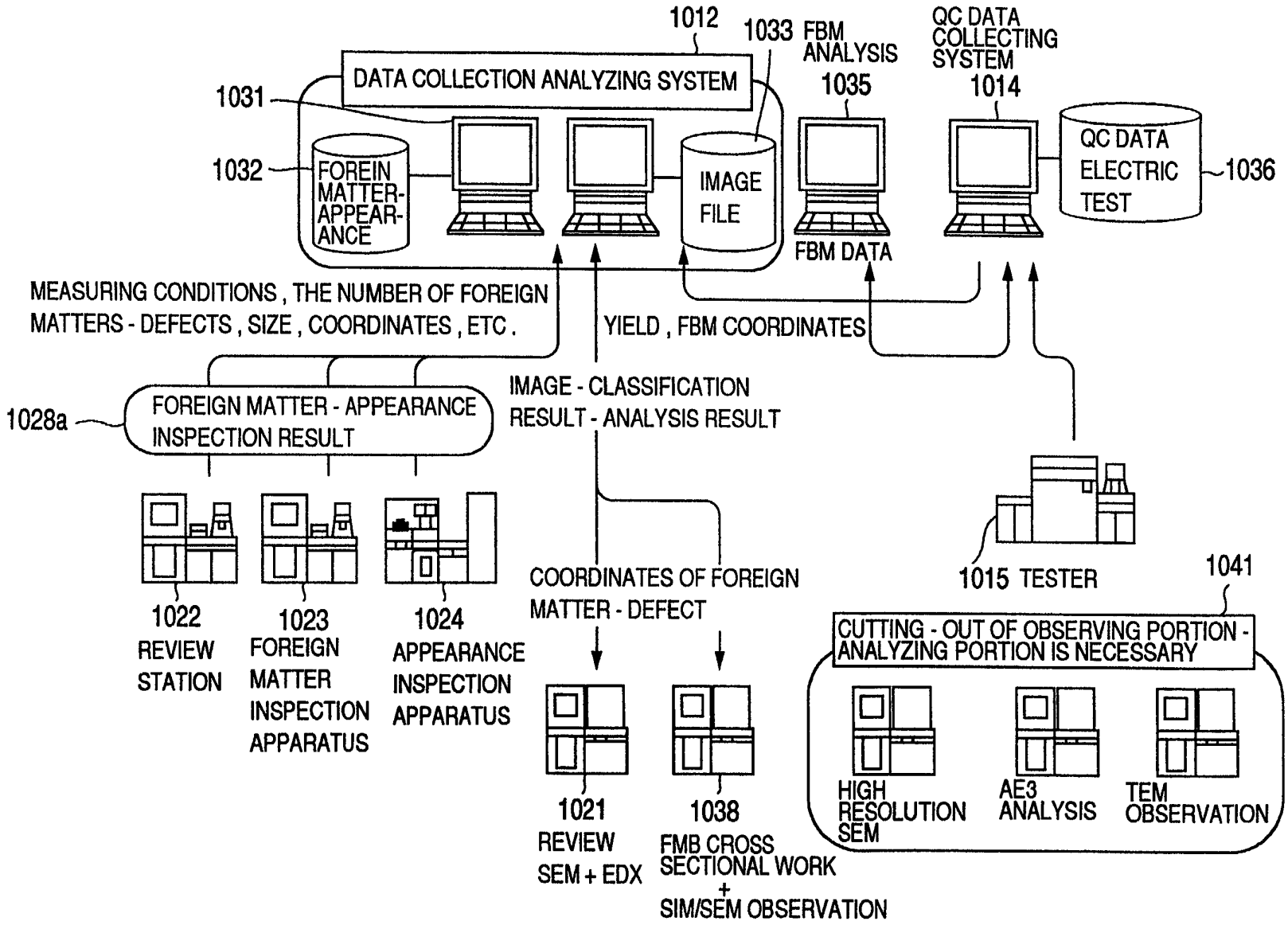

1010
1012
1037
1032
DATA COLLECTION ANALYZING SYSTEM
1033
QC DATA COLLECTING SYSTEM
1014
1036
1035
1034
SERVER
1016
YIELD, ELECTRIC TEST CATEGORY, HISTORY OF PROCESSING APPARATUS, SIZE, FILM THICKNESS, FOREIGN MATTER (MIRROR SURFACE) MATCHING PRECISION, WITHSTANDING VOLTAGE, FOREIGN MATTER, APPEARANCE
FOREIGN MATTER-APPEARANCE
IMAGE FILE
FBM DATA, FBM ANALYSIS
QC DATA ELECTRIC TEST
1031
1013
1017
1028
FOREIGN MATTER-APPEARANC-CLASSIFICATION RESULT
OTHER QC DATA
1029
PC IN OFFICE, VARIOUS SEARCHES, ANALYSIS, REPORT FORMING PROCESS
1021 REVIEW SEM
1022 REVIEW STATION
1023 FOREIGN MATTER INSPECTION APPARATUS
1024 APPEARANCE INSPECTION APPARATUS
1025 LENGTH MEASURING SEM
1026 MATCHING PRECISION MEASURING DEVICE
1027 FILM THICKNESS MEASURING DEVICE
1015 TESTER
1011

FIG.37


1012
1033
FBM ANALYSIS
1035
QC DATA COLLECTING SYSTEM
1014
DATA COLLECTION ANALYZING SYSTEM
1031
1032
FOREIN MATTER-APPEAR-ANCE
IMAGE FILE
FBM DATA
QC DATA ELECTRIC TEST
1036
MEASURING CONDITIONS , THE NUMBER OF FOREIGN MATTERS - DEFECTS , SIZE , COORDINATES , ETC .
YIELD , FBM COORDINATES
1028a
FOREIGN MATTER - APPEARANCE INSPECTION RESULT
IMAGE - CLASSIFICATION RESULT - ANALYSIS RESULT
1015 TESTER
1041
1022 REVIEW STATION
1023 FOREIGN MATTER INSPECTION APPARATUS
1024 APPEARANCE INSPECTION APPARATUS
COORDINATES OF FOREIGN MATTER - DEFECT
CUTTING - OUT OF OBSERVING PORTION - ANALYZING PORTION IS NECESSARY
HIGH RESOLUTION SEM
AE3 ANALYSIS
TEM OBSERVATION
1021 REVIEW SEM + EDX
1038 FMB CROSS SECTIONAL WORK + SIM/SEM OBSERVATION